Peeved university sues PeopleSoft for $510M. PAGE 6 **Social networking becomes a business tool.** PAGE 42

COMPUTERWORLD

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MARCH 29, 2004 • VOL. 38 • NO. 13 • $5/COPY

COBOL, RPG Bested By New Language ?

A new computer language, which competes with COBOL and RPG and is presently operational on IBM 1401 and System 360/30s and up, has been described by Statistical Tabulating Company Inc which is marketing it through its nation-wide chain of service centers. Developed by Ap-

Frank J. Burns, Stat Tabs National Director of Research & Development talking to your COMPUTERWORLD reporter this week explained the lack of change in object-time performance noted within his own operation was due to the fact that they were normally input-output bound

FORTY YEARS & COUNTING

Computerworld's inaugural issue in 1967 carried a Page One story on an upstart programming language called ADPAC from a company that its creator, Peter Harris, had founded three years earlier. That company marks its 40th anniversary this month, and Harris is still there, programming 10 hours a day. Page 12

ALSO: IDG, Computerworld's parent company, turns 40 under its founding leadership. Page 12

Europe Demands Server Jewels From Microsoft

EC's interoperability decree calls for release of interface documentation; Microsoft will appeal

BY PATRICK THIBODEAU AND CAROL SLIWA

In last week's antitrust ruling against Microsoft Corp., the European Commission demonstrated its determination to prevent the company from expanding its operating system dominance from desktops to servers.

By requiring server-to-server interoperability, the commission went well beyond the U.S. antitrust settlement reached in 2001. But there appears to be little consensus among Microsoft users, industry analysts and legal experts on the decision's likely impact.

INSIDE Microsoft gets some Speech Server recognition. PAGE 53

"It's not as big an issue as it was several years ago, because Microsoft is looking more toward standards," said Mike Jones, a developer at Woodforest National Bank in Spring, Texas.

Roger Owdom, a senior development engineer at Caterpillar Inc. in Peoria, Ill., said he doesn't have strong feelings about the decision and can see the argument from both sides.

But Owdom said he believes that the number of available application programming interfaces should be increased so other vendors and developers can expand upon what Microsoft has done. "I'm not exactly sure what the APIs are that they've been hiding," he said.

Javed Fouch, a programmer at Hagerty Insurance in Traverse City, Mich., said he sees benefits to disclosure. "The more that people have the opportunity to create products that integrate well with Microsoft

EC Decision, page 53

Clarke Blames Data-Sharing Woes for 9/11

Former Bush adviser cites FBI's failure to build IT infrastructure

BY DAN VERTON
WASHINGTON

Thousands of Americans died at the hands of terrorists on Sept. 11, 2001, primarily because of a fundamental inability among government agencies to share information, two top former counterterrorism officials said last week.

In a controversial new book and in testimony on March 24 before the National Commission on the Terrorist Attacks Upon the United States, Rich-

Clarke, page 16

ONLINE EXCLUSIVES

- A photo journal of Clarke's testimony: QuickLink a4180
- FBI faulted for IT failures: QuickLink 45780

www.computerworld.com

NetWare-on-Linux Release Due a Year Ahead of Schedule

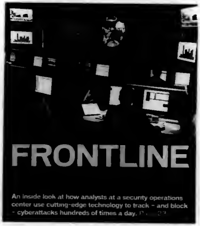
BrainShare attendees laud Novell's revival as Linux strategy unfolds

BY MATT HAMBLEN
SALT LAKE CITY

The next version of Novell Inc.'s NetWare, to be renamed Open Enterprise Server, is now expected to be released by the end of this year — a full year ahead of schedule.

After the release of OES, which will be a stack of services running on both the NetWare and Linux kernels, NetWare won't go forward as a stand-alone network operating system, Novell confirmed at its BrainShare user conference

BrainShare, page 16



An inside look at how analysts at a security operations center use cutting-edge technology to track – and block – cyberattacks hundreds of times a day. Page 23

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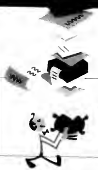

Sabre Takes Extreme Measures

In the Technology section: Since embracing extreme programming for software development, Sabre Airline Solutions has seen bug reports plummet and productivity rise, says Senior Vice President Brad Jensen **Page 28**

It's Not War and Peace

In the Management section: Every big IT investment starts out as a request for funding. The best IT proposals aren't epic masterpieces; they're short documents that are business-oriented and credible **Page 39**

NEWS

FORTY YEARS & COUNTING

March marks the 40th anniversary of ADPAC Corp., quite possibly the oldest software company still operating under its founding leadership. Page 12

TECHNOLOGY

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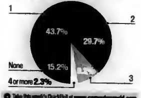
QuickPoll Results

How many wireless devices do you regularly carry when traveling?



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Clarke Testifies: The Day in Photos

SECURITY: *Computerworld*'s Dan Verton offers a close-up view of Richard A. Clarke's dramatic testimony before the 9/11 investigative commission. **QuickLink a4160**

Why Biz/IT Alignment Is Elusive

CAREERS: Most IT staffers are woefully inadequate at dealing with the delicate issues that arise in meetings with business leaders, says IT consultant Jim Carty. **QuickLink 45644**

Wireless Hacking Techniques

MOBILE/WIRELESS: In this excerpt from their book *Maximum Wireless Security*, authors Cyrus Peikari and Seth Fogie explain common attacks such as sniffing, spoofing and session hijacking. **QuickLink 45526**

What's a QuickLink?

Throughout each issue of *Computerworld*, you'll see five-digit QuickLink codes pointing to related content on our Web site. Also, at the end of each story, a QuickLink to that story online facilitates sharing it with colleagues. Just enter any of those codes into the QuickLink box, which is at the top of every page on our site.

ONLINE DEPARTMENTS

AT DEADLINE

HP Sues Gateway Over Tech Patents

Hewlett-Packard Co. filed a lawsuit in U.S. District Court in San Diego accusing Gateway Inc. of infringing on six patents related to PCs and servers. Gateway had licensed some of the patents until 1999, HP said, adding that it hopes to sign a new deal and settle the suit. Gateway said it is "very confident of our position and will defend ourselves vigorously."

Report Cites Project Problems at Agency

The inspector general at the U.S. Department of Veterans Affairs warned that the agency's installation of a new financial system faces possible delays and cost overruns because of project management shortcomings. The system is based on Oracle Corp. applications and budgeted at $472 million. In a report issued March 19, the inspector general said VA officials need to "aggressively oversee" a test deployment at a medical facility in Bay Pines, Fla.

Microsoft Previews Windows CE Rollout

Microsoft Corp. today will introduce a technology preview kit for an upgrade of its Windows CE embedded operating system that's due later this year. Windows CE 5.0 will make it easier for developers to add security features and voice-over-IP client software to embedded devices and thin clients, Microsoft officials said.

Indian Firm Signs IT Deal With IBM

IBM said its Indian subsidiary has signed a 10-year outsourcing deal valued at up to $750 million with Bharti Tele-Ventures Ltd., a telecommunications services provider in New Delhi. IBM will manage Bharti's hardware, software and IT services needs and consolidate its data centers and help desk operations.

University Pins $510M Lawsuit on PeopleSoft

Cleveland State is charging fraud and breach of contract over ERP project

BY MARC L. SONGINI

Ohio's attorney general has filed a lawsuit against PeopleSoft Inc. seeking $510 million in damages over a problematic installation of the company's ERP and student administration applications at Cleveland State University.

The lawsuit, which was filed Jan. 30 in an Ohio state court, claims that the student administration applications were "vaporware" when the project began in 1997 and that the module for managing financial aid remains unusable even now. Through the attorney general, Cleveland State is charging PeopleSoft with fraud, breach of contract, negligent misrepresentation and four other counts.

The school is also seeking unspecified damages from Kaludis Consulting Group Inc., a Washington-based firm that advised Cleveland State during the technology selection process and then temporarily managed the project.

Via e-mail, a spokesman for Cleveland State declined to comment about the suit, citing a school policy against discussing pending litigation. PeopleSoft officials also wouldn't discuss the case.

Cleveland State was the first user to install a full set of PeopleSoft's student administration applications. But in 1999, university officials blamed the software for problems in processing financial aid, enrolling transfer students and recording grades [QuickLink a4170].

In the lawsuit, Cleveland State says PeopleSoft falsely assured it that the applications would run on the school's IBM mainframe. In addition, the initial version of the software that Cleveland State received was "woefully deficient," according to the suit.

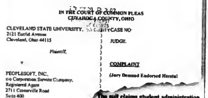
Subsequent releases also didn't work as promised, the school claims, saying it had to install "hundreds of fixes" to try to get the software to function properly. Work on the project continued unsuccessfully into 2001, the suit says.

The fallout at Cleveland State allegedly included more than $5 million in lost revenue because of an inability to track and collect receivables, plus the need to make unexpected purchases of a second mainframe and a Sun Solaris server with an Oracle database.

James Lang, an attorney at Cleveland-based Calfee, Halter & Griswold LLP who is handling the case for the attorney general, said Cleveland State eventually gave up on some of the PeopleSoft applications and decided "to go down another path." But Lang said he didn't have details about the technology now used for student administration.

Joshua Greenbaum, an analyst at Daly City, Calif.-based Enterprise Applications Consulting, said failed ERP installations are often the result of implementation problems, not shortcomings in the software itself.

"But what's important when you see a lawsuit of this magnitude erupt into the public arena is that the customer relationship process between vendor and customer has broken down completely," Greenbaum said. 45786


IN THE COURT OF COMMON PLEAS
CUYAHOGA COUNTY, OHIO

CLEVELAND STATE UNIVERSITY,) CASE NO.
2121 Euclid Avenue)
Cleveland, Ohio 44115) JUDGE
Plaintiff,)
v.)
PEOPLESOFT, INC.) COMPLAINT
c/o Corporation Service Company,) (Jury Demand Endorsed Hereon)
Registered Agent)
2711 Centerville Road)
Suite 400
Wilmington, Delaware 19808

The suit claims student administration applications were "vaporware" at first and remained "woefully deficient."

Mobile Phones Move Toward Combined Calling Capabilities

BY BOB BREWIN
ATLANTA

At last week's CTIA Wireless 2004 conference, technology vendors held out the promise of all-in-one mobile devices that combine the functions of cordless phones, cellular handsets and IP telephones.

Corporate users said the combined products could cut costs and reduce the need for mobile workers to carry multiple devices to support different modes of mobile voice communications.

William Greskovich, vice president of operations and CIO at St. Agnes HealthCare in Baltimore, said dual-mode phones supporting cellular communications and voice-over-IP calls made via wireless LANs would make it easier for his staff to support visiting doctors who have practices at St. Agnes and want to use the hospital's WLAN for making calls.

Shawn Wilde, director of worldwide operations at Trimble Navigation Ltd., a Sunnyvale, Calif.-based maker of Global Positioning System receivers, has already deployed 40 wireless VoIP phones from Cisco Systems Inc. But Wilde said he's so intrigued by the potential utility of dual-mode phones that he doesn't plan to buy any more pure VoIP devices until the combined models hit the market and he evaluates them.

Some dual-mode devices are already available but have limitations. Nokia Corp. last month introduced a dual-band cell phone that can function as an IP phone when it senses a WLAN, although it needs to connect to a PC-based softphone client to do so.

Denmark-based RTX Telecom A/S last week debuted a cordless phone that can make calls through the public switched telephone network or link to softphone clients for wireless VoIP calls.

Devices that don't require the use of softphone technology are starting to appear on the horizon. At the chip level, Texas Instruments Inc. introduced a low-power Wi-Fi chip set for dual-mode phones and said it's working with Motorola Inc. to develop combined cellular/VoIP products.

The new chip set uses 50% less power than an earlier version and supports both data and VoIP operations, according to a TI spokeswoman. She said Motorola expects to ship a phone based on TI's first dual-mode chip set this year and will add a device built around the new one in 2005. 45785

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Security Product Flaws Attract Attackers

Witty worm marks latest case in point

BY JAIKUMAR VIJAYAN

The software vulnerability that was exploited by last week's Witty worm is only the latest on a growing list of flaws that are being discovered in the very products users invest in to safeguard their systems.

"This is a new realm of risk that users must confront: the security of security [products]," said Andrew Plato, president of Anitian Enterprise Security, a systems integration and consulting firm in Beaverton, Ore.

The Witty worm, which was reported to have damaged between 15,000 and 20,000 computers worldwide, took advantage of a flaw involving the BlackIce and RealSecure intrusion-prevention products from Atlanta-based Internet Security Systems Inc. (ISS). The worm wrote random data onto the hard disks of vulnerable systems, causing the drives to fail and making it impossible for users to start up the systems.

The flaw was the result of a buffer overflow condition in a function used to detect peer-to-peer traffic, said Chris Rouland, director of the X-Force security team at ISS.

The company worked to "very quickly mitigate the risk" after being informed of the problem by eEye Digital Security Inc., Rouland added. But Witty was released "almost immediately" after the fix became available and before some users had time to respond, he said. Rouland said the number of major flaws that have been discovered in ISS products over the past five years has been limited to two. That's well below the industry average, he stressed, because ISS follows strong quality and code audit processes.

Just a few weeks earlier, a vulnerability caused by an unchecked buffer was discovered in a firewall from Zone Labs Inc. in San Francisco. Fred Felman, vice president of marketing at Zone Labs, said his company also responded quickly, so no exploits were reported. Zone Labs follows "stringent" processes for product quality, Felman added.

In February, vulnerabilities were discovered in a firewall from Check Point Software Technologies Inc. that could have allowed attackers to modify firewall rules. Similarly, a critical vulnerability was discovered in an Internet security product from Symantec Corp. that would have let attackers gain remote access to a compromised system. Overall, security vendors average about four critical vulnerabilities each year, according to statistics from ISS.

The trend isn't a particularly comforting one, Plato said. "Users should be very worried about this. The mad dash to be first to market on every feature often creates sloppy engineering."

Security software is becoming an attractive target for attackers, said John Pescatore, an analyst at Stamford, Conn.-based Gartner Inc. "If you are a hacker and you want to get some publicity, the best way to get it is to [break into] a security product," he said.

Last week's incident also put the spotlight on a troubling habit by some security vendors to search for and disclose flaws in rival products as part of their competitive efforts, said Pete Lindstrom, an analyst at Spire Consulting LLC in Malvern, Pa.

Aliso Viejo, Calif.-based eEye, which discovered the ISS flaw, sells products that compete with those from ISS. It was also eEye that discovered the Zone Labs flaw. And ISS in the past has found problems in other vendors' products, such as those from rival Check Point.

"It's a fundamental conflict of interest," Lindstrom said. "Why would you even be looking at your competitors' products to begin with?"

According to Firas Rouf, chief operating officer at eEye, his company doesn't specifically search for flaws in competitors' products. The discovery of the ISS flaw was the result of research being conducted on a similar product being developed by eEye, Rouf said.

Rouland said ISS is interested only in finding vulnerabilities that exist in broadly used products. "We would look at a Check Point product just as we would a Microsoft product, because they are both so widely deployed," he said. 45775

Nonsecure Security

Recently reported flaws in security products:

- **ISS BlackIce and RealSecure software:** ICQ parsing vulnerability
- **Zone Labs ZoneAlarm firewall:** SMTP processing vulnerability
- **Symantec Internet Security 2004 and Internet Security 2004 Professional:** ActiveX component arbitrary file-execution vulnerability
- **Check Point FireWall-1:** HTTP parsing format string vulnerabilities

Dell Boosts NAS Capacity By Adding External Storage

Seeks to undercut HP's low-end products on price

BY LUCAS MEARIAN

In a challenge to Hewlett-Packard Co. in the low-end storage market, Dell Inc. last week announced a network-attached storage (NAS) device that runs Windows and supports external disk drives as a more scalable alternative to internal ones.

The PowerVault 745N supports between 160GB and 1TB of internal storage using Serial ATA disk drives or up to 4TB of external capacity on SCSI drives. Pricing starts at $1,799 for the device, which is an upgraded version of Dell's PowerVault 725N array. That product supports only internal storage.

RSP Architects Ltd., a firm with dual headquarters in Minneapolis and Tempe, Ariz., uses the 725N and is looking to upgrade to the 745N to take advantage of the increased scalability.

Tom Kouri, director of IT at RSP, said he also looked at NAS boxes from HP, EMC Corp., IBM and Iomega Corp. before deciding to buy the 725N last year — partly because of Dell's pricing.

"Every time we looked at the IBMs, EMCs, HPs and Compaqs to negotiate hardware, Dell was always able to give us a much better deal," he said. "If you're selling the same box with a few different tweaks, what does it really come down to?"

Dell resells EMC's Clariion storage products, including a low-end NAS device that combines the Clariion CX200 disk array with Microsoft Corp.'s Windows Powered NAS software. Sold as the NetWin 200, it scales from 500GB to 4.4TB and starts at $32,000. But despite the similar capacities, Dell said it does not see the 745N and NetWin 200 as rivals.

"One of our key goals is to offer enterprise-class functionality at very aggressive price points," said Bruce Kornfeld, director of worldwide marketing at Dell. "EMC is well aware of what we're doing."

Because of the vast difference in price, the EMC and Dell devices are targeted at two different markets, said Peter Gerr, an analyst at Enterprise Storage Group Inc. in Milford, Mass. "I see this as Dell attacking the lower-end space," Gerr said.

EMC spokesman Rick Lacroix said Dell will continue to use EMC's hardware for higher-end NAS devices and disk arrays. "The relationship between EMC and Dell is very strong," he said.

HP's low-end StorageWorks NAS 1200s product line starts at $2,999 for a 320GB device and can support up to 1TB of internal storage capacity. Harry Baeverstad, director of NAS storage at HP, claimed that Dell's lower entry-level price for the 745N is deceiving because it includes only enough capacity to run Windows.

Baeverstad said a more valid comparison would be to HP's NAS 2000s, which supports external storage. Pricing for the 2000s starts at $8,295 with internal drives and $13,295 with external ones. "It's comparably priced, if not better priced" than the 745N, he said.

In response, a Dell spokesman said the 745N is priced at about $3,700 for a full 1TB internal storage configuration and starts at less than $10,000 with external storage. 45753

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PRODUCT DETAILS

Rack-mounted device configured for installation in 1U (1.75-in.-high) slots

Runs on Windows Storage Server 2003 and includes a Celeron or Pentium 4 processor

Supports as much as 1TB of internal storage and 4TB of external capacity

Provides data snapshot capabilities through Microsoft's Volume Shadow Copy Service

Starting price: $1,799 with 160GB of internal storage

Oracle Postpones Messaging Upgrade

Oracle Corp. said it now plans to ship a new version of its Collaboration Suite messaging software by year's end, as much as six months behind schedule. The upgrade, which had been due by midyear, will add instant messaging and other features. Oracle executives said they remain committed to the software despite the delay and a small market share.

Red Hat Reports Big Sales Increase

Red Hat Inc. reported a 43% year-over-year jump in revenue for its fourth quarter, which ended Feb. 29. The company, which was profitable in the quarter, said it sold about 87,000 new subscriptions for its Enterprise Linux operating system.

BY THE NUMBERS

	REVENUE	PROFIT
Q2 FY04		[illegible]
Q2 FY03		[illegible]

GNOME Web Server Struck by Intrusion

The GNOME Project delayed an upgrade of its open-source desktop software from March 24 to this Wednesday because of an intrusion on its Web server. A member of the group said in an e-mail posting that none of the source code it has released was affected. But, he added, the upgrade to GNOME 2.6 was put on hold to give systems administrators time to investigate the incident.

Short Takes

announced the second version of Internal Controls Manager, an application that's designed to help users document their financial controls as part of Sarbanes-Oxley Act compliance projects. . . .
unveiled two CRM applications tailored for financial services firms and one aimed at universities.

IPOs Hit Governance Pothole . . .

. . . as high-tech start-ups grapple with complex compliance issues that are slowing their efforts to go public. You might not think that it matters much, but without the incentive to **strike it rich on Wall Street,** entrepreneurs and venture capitalists may opt for corporate takeovers as the less onerous way to cash out. That changes the nature of innovation in technology because bigger companies often buy little ones not to capitalize on new products but simply to squelch them so they no longer pose a competitive threat. New public companies have long been the source of IT's ability to help businesses compete. Think of Intel, Sun, Cisco, Microsoft and others. Without the IPO market, we might **still be running CP/M on Zilog chips using Hayes modems.** Michael Howard, CEO of OuterBay Technologies Inc. in Cupertino, Calif., observes that in addition to investors demanding better financial performance from pre-IPO companies than ever before, Uncle Sam has tossed a big, expensive compliance hurdle in front of start-ups. "In order to go public today, you also have to be ready to spend millions for governance," he says. Konrad Feldman, the CEO of another pre-IPO company, New York-based Searchspace Corp., agrees. "The costs of going public [are] potentially an issue because they are costs you can't control," he says. "You must comply." Ken Schneider, chief technology officer and vice president of operations at Brightmail Inc. in San Francisco, acknowledges that some start-ups might lack the resources to meet new governance standards. But, he adds, "well-managed companies usually have their [compliance] act together before they get to the IPO stage." Brightmail has just filed papers with the U.S. Securities and Exchange Commission to go public. But **going public isn't slowing antispam** work at Brightmail. The next release later this year of its BrightSig algorithms will be able to detect spam that can trick standard Bayesian filters by inserting "good" words into the tops and bottoms of messages, which is where the filters do their analysis. You can expect less spam as a result.

Serial Success

Serial Advanced Technology Attachment (SATA) technology gets a boost on April 5 when Advanced Technology and Systems Co. in Irvine, Calif., releases its L Series of SATA 15-drive arrays. The arrays offer both Fibre Channel and UltraSCSI host connectors. Each SATA drive has a capacity of 120GB. Pricing starts at $8,855.

The folks at Postini Inc. in Redwood City, Calif., also think they're pretty good at fighting spam. Apparently, the U.S. Patent and Trademark Office thinks so, too, because it **issued Postini a pretty broad patent** that will be announced today. According to company founder Scott Petry, the patent, among other things, grants the company rights over modifying Domain Name System records to redirect e-mail to a managed service provider, as well as an MSP's ability to let end users configure their antispam preferences. Although he says Postini "will not be a predatory patent company," antispam MSPs better take a close look at the patent. Petry believes the patent will give Postini a competitive edge and be **seen as a bonus by Wall Street** when the company files to go public. One of the great serial start-up execs in Silicon Valley, **Judy Estrin, is at it again.** She has helped found three successful start-ups — Bridge Communications, Network Computing Devices and Precept Software — and wants to hit the jackpot again as chairman and acting CEO of Precision I/O Inc. in Palo Alto, Calif. Next week, the fledgling operation will announce that it has received $10 million in venture capital. Estrin says Precision I/O software will open the networking-server bottleneck that has emerged with 1 Gigabit Ethernet and **will become untenable with 10 Gigabit Ethernet.** The product, which she declined to name, will offload from the operating system the handling of network protocols. Expect more news this summer. **Apple Computer Inc. starts shipping the two-CPU version of its Xserve** 1U (1.75-in.-high) server in April to complement the single-CPU units it began shipping this month. Apple says the combination of its QuickTime Streaming Server software and the Xserve's dual Gigabit Ethernet and fast Error-Correcting Code memory (which wasn't available in previous Xserve servers), plus unlimited user licenses for Mac OS X, will make the server **perfect for large-scale streaming video operations** because one Xserve can handle 10,000 simultaneous streaming sessions. If only there was something worth watching. **45760**

Users Applaud, Critique Microsoft CRM

BY MARC L. SONGINI

A panel of IT managers who are running Microsoft Corp.'s CRM applications said last week that the first release was a good start. But some added that they have hit performance and connectivity bumps.

Microsoft CRM, which began shipping early last year, was relatively simple to roll out and has been stable, said users who spoke during a forum at Microsoft's Convergence 2004 conference here.

But the start-up process hasn't been trouble-free, they said. For instance, Rick Shrum, director of IT for the Seattle SuperSonics and Storm basketball teams, said linking Outlook clients to Version 1.0 of the CRM software over his WAN and synchronizing data was a very slow process.

Shrum said Outlook works better with Version 1.2 of the software, which was released in December and includes a fast synchronization feature.

Workers at Designer Doors Inc.'s 15 remote sales offices also are having some problems with Microsoft CRM 1.0, said Michael Kruger, information systems manager at the River Falls, Wis.-based door maker. The salespeople connect to the software via a virtual private network but are unable to access CRM data on their PCs when they go offline. Microsoft's technical support team has tried without success to resolve the problem, Kruger said.

Microsoft CRM 1.0 was "very strong" for a new code base, said Douglas Burgum, president of Microsoft's Business Solutions unit. Version 1.2 improved the software's stability and performance, he said, adding that Version 2.0 is due within the next 12 months. **45784**

MORE NEWS

Microsoft is adding mobile CRM support and upgrading three of its ERP lines.

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BRIEFS

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MARK HALL • ON THE MARK

IPOs Hit Governance Pothole . . .

. . . as high-tech start-ups grapple with complex compliance issues that are slowing their efforts to go public. You might not think that it matters much, but without the incentive to **strike it rich on Wall Street,** entrepreneurs and venture capitalists may opt for corporate takeovers as the less onerous way to cash out. That changes the nature of innovation in technology because bigger companies often buy little ones not to capitalize on new products but simply to squelch them so they no longer pose a competitive threat. New public companies have long been the source of IT's ability to help businesses compete. Think of Intel, Sun, Cisco, Microsoft and others. Without the IPO market, we might **still be running CP/M on Zilog chips using Hayes modems.** Michael Howard, CEO of Outer-Bay Technologies Inc. in Cupertino, Calif., observes that in addition to investors demanding better financial performance from pre-IPO companies than ever before, Uncle Sam has tossed a big, expensive compliance hurdle in front of start-ups. "In order to go public today, you also have to be ready to spend millions for governance," he says. Koorad Feldman, the CEO of another pre-IPO company, New York-based Searchspace Corp., agrees. "The costs of going public [are] potentially an issue because they are costs you can't control," he says. "You must comply." Ken Schneider, chief technology officer and vice presideot of operations at Brightmail Inc. in San Francisco, acknowledges that some start-ups might lack the resources to meet new governance standards. But, he adds, "well-managed companies usually have their [compliance] act together before they get to the IPO stage." Brightmail has just filed papers with the U.S. Securities and Exchange Commission to go public. • But **going public isn't slowing antispam** work at Brightmail. The next release later this year of its BrightSig algorithms will be able to detect spam that can trick standard Bayesian filters by inserting "good" words into the tops and bottoms of messages, which is where the filters do their analysis. You can expect less spam as a result. • The folks at Postini Inc. in Redwood City, Calif., also think they're pretty good at fighting spam. Apparently, the U.S. Patent and Trademark Office thinks so, too, because it **issued Postini a pretty broad patent** that will be announced today. According to company founder Scott Petry, the patent, among other things, grants the company rights over modifying Domain Name System records to redirect e-mail to a managed service provider, as well as an MSP's ability to let end users configure their antispam preferences. Although he says Postini "will not be a predatory patent company," antispam MSPs better take a close look at the patent. Petry believes the patent will give Postini a competitive edge and be **seen as a bonus by Wall Street** when the company files to go public. • One of the great serial start-up execs in Silicon Valley, **Judy Estrin, is at it again.** She has helped found three successful start-ups — Bridge Communications, Network Computing Devices and Precept Software — and wants to hit the jackpot again as chairman and acting CEO of Precision I/O Inc. in Palo Alto, Calif. Next week, the fledgling operation will announce that it has received $10 million in venture capital. Estrin says Precisioo I/O software will open the networking-server bottleneck that has emerged with 1 Gigabit Ethernet and **will become untenable with 10 Gigabit Ethernet.** The product, which she declined to name, will offload from the operating system the handling of network protocols. Expect more news this summer. • **Apple Computer Inc. starts shipping the two-CPU version of its Xserve** 1U (1.75-in. high) server in April to complement the single-CPU units it began shipping this mooth. Apple says the combination of its QuickTime Streaming Server software and the Xserve's dual Gigabit Ethernet and fast Error-Correcting Code memory (which wasn't available in previous Xserve servers), plus unlimited user licenses for Mac OS X, will make the server **perfect for large-scale streaming video operations** because one Xserve can handle 10,000 simultaneous streaming sessions. If only there was something worth watching. **Q 45760**

Serial Advanced Technology Attachment (SATA) technology gets a boost on April 5 when [illegible] in Irvine, Calif., releases its L Series of SATA 15-drive arrays. The arrays offer both Fibre Channel and UltraSCSI host connectors. Each SATA drive has a capacity of 120GB. Pricing starts at $8,855.

Users Applaud, Critique Microsoft CRM

BY MARC L. SONGINI
KISSIMMEE, FLA.

A panel of IT managers who are running Microsoft Corp.'s CRM applications said last week that the first release was a good start. But some added that they have hit performance and connectivity bumps.

Microsoft CRM, which began shipping early last year, was relatively simple to roll out and has been stable, said users who spoke during a forum at Microsoft's Convergence 2004 conference here.

But the start-up process hasn't beeo trouble-free, they said. For instance, Rick Shrum, director of IT for the Seattle SuperSonics and Storm basketball teams, said linking Outlook clieots to Version 1.0 of the CRM software over his WAN and synchronizing data was a very slow process.

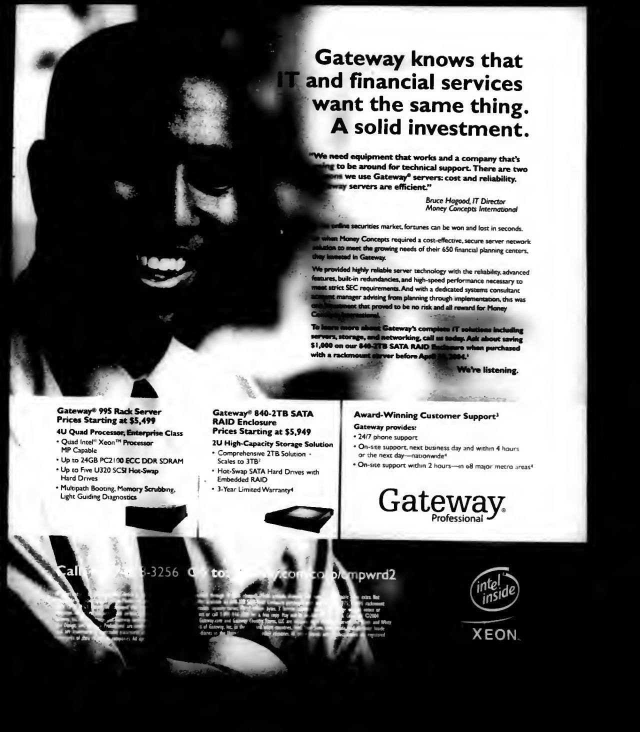
Shrum said Outlook works better with Version 1.2 of the software, which was released in December and includes a fast synchronization feature.

Workers at Designer Doors Inc.'s 15 remote sales offices also are having some problems with Microsoft CRM 1.0, said Michael Kruger, information systems manager at the River Falls, Wis.-based door maker. The salespeople connect to the software via a virtual private network but are unable to access CRM data on their PCs when they go offline. Microsoft's technical support team has tried without success to resolve the problem, Kruger said.

Microsoft CRM 1.0 was "very strong" for a new code base, said Douglas Burgum, president of Microsoft's Business Solutions unit. Version 1.2 improved the software's stability and performance, he said, adding that Version 2.0 is due within the next 12 months. **Q 45784**

MORE NEWS

Microsoft is adding mobile CRM support and upgrading three of its ERP lines.
QuickLink 45809
www.computerworld.com



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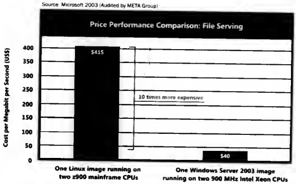
Microsoft



Linux was found to be over 10 times more expensive than Windows Server™ 2003 in a recent study. The study, audited by leading independent research analyst META Group, measured costs of Linux running on IBM's z900 mainframe for Windows-comparable functions of file serving and Web serving. The results showed that IBM z900 mainframe running Linux is much less capable and vastly more expensive than Windows Server 2003 as a platform for server consolidation. To get the full study and other third-party findings, visit microsoft.com/getthefacts

Microsoft Windows Server System

Forty Years Later, ADPAC Lives

Featured on the cover of the inaugural issue of Computerworld, the programming language and the software company that developed it have survived against formidable odds. By Don Tennant

FORTY YEARS COUNTING

"COBOL, RPG BESTED BY NEW LANGUAGE?" That was the headline on page 1 of *Computerworld*'s inaugural edition on June 21, 1967.

The language in question, called ADPAC, was developed at Applied Data Systems Inc., a San Francisco-based company that this month marked its 40th anniversary. **Peter Harris**, the creator of ADPAC and founder of the company that subsequently changed its name to ADPAC Corp., calls himself "America's senior programmer." Harris, now 74 and the company's chief technology officer, recently spoke with *Computerworld* about what may well be the oldest software company in the world still operating under its founding leadership.

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COBOL, RPG Bested By New Language ?

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The first issue of *Computerworld* on June 21, 1967, covered ADPAC.

What ever happened to the ADPAC language? It's still widely used. We sold it to hundreds of companies, and we still have a number of them who have some major applications written in ADPAC.

"A number" being how many? I would say a hundred. Travelers, Prudential, Citibank Corp. — they all had it. I don't know [offhand] which companies are still using it, but I know there are up to a hundred companies paying us annual renewals. We get close to $1 million a year in annual renewals.

You would contend that ADPAC is superior to Cobol, no doubt. Everybody knows that. Technically, there's no question about it. It has more features, functions; it's easier to program in, easier to learn. Cobol was not very popular in the early days; it started to gain strength in the '70s.

To what do you attribute the fact that ADPAC never managed to unseat Cobol? The government. There's no question about it. The federal government said, "All programming for the government will be done in Cobol."

Your company did a lot of Y2k conversion work. At what point did you, as one of the early programming pioneers, realize that there was going to be a problem on Jan. 1, 2000? I wrote letters [to clients] in 1968 and 1978 and 1988. All that time, I wrote letters, and I got absolutely no interest whatever. All of our [client] companies had ignored the Y2k issue. They were all acting like there was no change of century. I started to call them; I got absolutely no response — no reaction. I couldn't convince anybody to do any work on it. I'm talking about Aetna, Travelers, Prudential, you name it — big corporations. Nobody did anything about it until 1998.

So you foresaw this problem as early as 1968? Well, you could see it, yeah. Here I am, thinking I'm in the forefront of software and data processing, and one by one, we're picking up large national accounts, and I'd tell them about this. Zero interest. Even as early as the '60s.

As it turned out, Y2k had a very positive impact on your company as a revenue generator, didn't it? Oh yeah. We went from $1 million or $2 million to $10 million in 1999. Interestingly enough about Y2k, very little of it has actually been converted in databases. The majority of fixes to Y2k was done with what's called windowing. What [technicians] would do is, where they needed a date, they would call in a small routine and modify the date right there and print it in the report. But they never changed the database. And that's still true today.

A [similar] problem coming up is the UPC [Universal Product Code used for bar codes]. It's required to be

IDG Marks 40 Years Under Founding Leadership, Too

JUST NINE DAYS before Peter Harris founded ADPAC, **Patrick J. McGovern** on Feb. 26, 1964, founded International Data Group, *Computerworld*'s parent company. Boston-based IDG, now a global IT publishing and market research firm, is also celebrating 40 years under its founding leadership, with McGovern serving as its chairman.

McGovern spoke with *Computerworld* last week and shared his perspective on the outlook for the IT community. Excerpts follow:

Do you think offshore outsourcing will have a net positive impact or a negative impact on the U.S. IT industry? Outsourcing will definitely be a benefit to the U.S. IT industry. Outsourcing reflects the globalization of labor. It will take several decades, but eventually there will be equal pay for equal work all over the world. It is only fair that human beings are rewarded for their work in comparable ways. This process will allow the IT industry to benefit from the most skilled people available at the most competitive rates of compensation.

What is your advice to college-age students who are considering pursuing a degree in computer science but are wary about their employment prospects? I definitely would encourage college-age students to pursue a degree in computer science. Although the market has slowed

I kept telling everybody, 'There ain't nobody going to change over to Java.' It's a crazy language.

changed by the first day of next year [QuickLink 39121]. And almost no company is moving on it. And I'm talking about large corporations like Target and people in the grocery business that depend upon that bar code. All of their applications are sitting there with eight- or 10-digit codes, and they're going to have to increase it to 14 characters by the first of the year.

How has programming changed as a career over the years? At various times in the past 30 years, Cobol was supposed to die and people lost interest in it. Three or four years ago, it was all going to be Java and big companies were going to change all of their code over to Java. I kept telling everybody, "There ain't nobody going to change over to Java." It's a crazy language. It's more like C++. It's difficult to program, difficult to maintain; who's going to do it? Now, programmers, when they go to school, what do they learn? They learn C++. Where are they going to get a job? They can't get a job until they can boast some Cobol experience.

The software employment situation is going to come back. The first people who will be hired will be people who know Cobol — not Java and not C++. The big mainframes are virtually 100% in Cobol. Some of them are in PL/1, and we have a translator from PL/1 to Cobol. We can't sell it because PL/1 shops are fantastically in love with PL/1. It's a personality issue. When you learn PL/1, you don't want to learn or think about anything else.

What is your view on the offshore outsourcing of programming work, and what does it mean for the future of programming as a career in the U.S.? I'm not sure that big corporations want people trained in beautiful downtown India dialing into their mainframe in New York City. So I don't think there's going to be as much offshoring as a lot of people think. Big companies regard their software as very proprietary — very personal and very homeowned. Moving it and training people in India and that area I don't think is their cup of tea.

Does ADPAC send any programming work offshore? No. We have very specialized people. Remember, practically all the services and programming we provide are done with automated tools. We have so many automated tools for processing mainframe Cobol. Here's a crazy example: We just submitted a bid to the state of California. They will not accept fixed-price bids. All of our bids are fixed-price. Why? Because we use our software. We do in a day or a few hours what another company would take a month to do. We can't bid that on an hourly basis, because we'd finish in three days what represents a month or two of work. So when we bid competitively, we have to bid the month or two of labor. We pick what we think is a winning price, bid it and complete the work in three days.

ADPAC Apps Still Going Strong, User Says

how long his company has been using the ADPAC programming language, and he's unable to give you a precise answer. "Well, I've been here for 34 and a half years, and it was here when I got here," he says. "So I'd say at least 35 years."

Odoms, assistant IS manager at Longview Fibre Co., a paper packaging manufacturer in Longview, Wash., said his company uses ADPAC for batch processing applications on its IBM mainframe. "It's a perfect package for master-file updating from a transaction file," Odoms said. "That's the whole backbone of this particular language, and it does that very well."

And Odoms supported ADPAC Corp. founder Peter Harris' assertion that ADPAC has advantages over Cobol. "If you were a new programmer and didn't know any languages, I would say ADPAC would be the easier language to learn," he said. "The structure is very similar to RPG."

Although Harris is writing a translator to convert ADPAC to Cobol, Odoms said it's unlikely that Longview Fibre will take advantage of it. "We're eventually going to be replacing the mainframe, and we don't do any new development" on the mainframe, Odoms said. The company has eight programmers who know ADPAC well and can support it for as long as Longview Fibre retains its mainframe, he added.

– Don Tennant

How do you account for the fact that your company was never acquired? We eventually will be acquired. We're trying to position ourselves for that, now that we're just starting to get profitable again [following a post-Y2k downturn]. Before this, owning a language and owning a compiler and trying to sell it was weird to them. Everybody said, "It's a Cobol world." What we're doing now in preparation for the sale of the company is writing a special translator that translates ADPAC into Cobol. We have a million lines of ADPAC code that maintains all of our systems — our Y2k system, our UPC system is all written in ADPAC. We have many special processes that we sell, but they're all written in ADPAC. So if we want to sell the company, they're not going to buy it if you need to have an ADPAC programmer. What they want is ordinary Cobol.

When do you expect the company to be acquired? I would say within the next two years. The thing of it is now we're starting to be profitable again, and we like it. When we get the state of California contract, we're going to be very profitable; one more contract, and we're going to be filthy rich.

Suppose three years ago I sold the company for $6 million. . . . I would have put it in the stock market. I could have lost my shirt.

Why did you never take the company public? Don't you think you could have made a bundle when the dot-com bubble was intact? Our board of directors, which are very senior people, were not dot-commers. They didn't like the idea, and you had to prove to them that if you're going to go public, you had to be a multimillion-dollar company. Our board never saw us that way this soon.

What would you say is the single smartest thing you did during your career? I'm successful because I'm patient. Patience is the key to success.

What's the one thing you'd be most inclined to change if you had it to do over? We opened 12 branch offices 20 years ago to support services throughout America. I had to raise a million bucks to do it, and I had to bring in private capital to do it. Three years ago, I bought them all out. And I paid 2 million bucks to do it. I'm not so sure buying out the old stockholders was the right move, because I'd rather have the 2 million bucks.

I don't know that there's anything [else] I'd change. Suppose three years ago I sold the company for $6 million. What would I have done with it? I would have put it in the stock market. I could have lost my shirt. Because many of my friends did. People I paid that $2 million to took their money and bought stock. I have one guy on our board who absolutely went broke.

What's the biggest challenge you face now? Having 40 years of these ups and downs, I am now facing a tremendous up. Usually, a company sells for four to six times its revenue. When we get to be a $5 million business, which we'll start to approach later this year, that means we could sell the company for $20 million. What would I do, at my age, with all that money? I program 10 hours a day, six or seven days a week. I still work hard at it. So the challenge is, I'm going to face that opportunity. Am I smart enough to deal with it? I don't know. 45697

down in the last three years because of the bursting of the Internet bubble, it is now entering a growth phase, which should continue for the next 12 to 15 years.

Currently, the worldwide IT market is about $1.3 trillion, and it will grow to $3 trillion by 2020. The 1 billion users of IT devices and systems today will grow to 3 billion users by 2020, virtually 50% of the world population. This will create great employment opportunities for IT professionals in the years ahead.

What single quality has your experience shown to be the most important one for an IT professional to possess in order to be successful? I've found that there are actually two. One is the ability to relate well with their clients so that they can set expectations that are closely matched to achievable reality. The other is persistence – never getting discouraged or giving up, but pushing ahead to get to a successful conclusion.

– Don Tennant

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Does ADPAC send any programming work offshore?

When do you expect ... to be acquired?

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What single quality has your experience shown to be the most important one for an IT professional to possess in order to be successful?

the years ahead.

D. Tennant

BRIEFS

Cisco to Acquire Security Vendor

Cisco Systems Inc. said it plans to buy full ownership of Riverhead Networks Inc., a developer of network security technology in Cupertino, Calif., for $39 million in cash. Riverhead makes software that's designed to protect networks against denial-of-service attacks and other threats. Cisco, which already owns 10% of Riverhead, said it expects to complete the acquisition by the end of next month.

VA Taps HP to Support System

The U.S. Department of Veterans Affairs awarded Hewlett-Packard Co. a 10-year, $784 million contract to support and maintain the clinical and administrative system used at the agency's 170 medical facilities. The deal expands on a series of one-year contracts HP has held since the early 1990s. The system HP supports, known as VISTA, is tied to 21 networks that the VA operates.

AT&T Speeds Up VoIP Development

AT&T Corp. said it's accelerating a rollout of additional voice-over-IP services aimed at corporate users. The company by year's end will add VoIP-enabled options for users of its managed data communications and virtual private network services. AT&T also said it will offer VoIP applications for call centers, remote workers and IP Centrex networks, with trials due to begin by midyear.

Short Takes

CISCO announced a set of IP-based technologies that support streaming video and video-on-demand applications for corporate users. . . . Paris-based GROUPE BULL said it has signed a deal to bundle server virtualization software made by EMC Corp.'s VMWARE INC. unit with its GCOS 7 line of mainframes.

Sarbanes-Oxley Sparks Forensics Apps Interest

Vendors offer monitoring tools to help identify incidents of financial fraud

BY THOMAS HOFFMAN

MOST COMPANIES working on Sarbanes-Oxley projects are focused on documenting their internal controls to meet the compliance deadlines that start taking effect late this year. But the law's requirements are generating interest in using computer forensics tools to help identify potential cases of financial fraud.

For example, Avery Dennison Corp. is piloting software announced last week by Oversight Technologies Inc. that can be used to monitor finance systems for irregular transactions. Mark Van Holsbeck, director of enterprise security at Avery Dennison, said the software should reduce the amount of time workers at the Pasadena, Calif.-based maker of adhesive products now spend poring over printouts of financial data to determine whether any information has been altered or corrupted.

Avery Dennison's use of the Oversight tool wasn't driven by the mandates of the Sarbanes-Oxley Act, Van Holsbeck said. But the technology should help the company satisfy components of the financial reporting law, he added.

Similar Conclusion

Other users are expected to come to the same conclusion about computer forensics tools, which can track how data is used and modified.

Meta Group Inc. analyst John Van Decker said he expects to see an uptick in forensics technology investments related to Sarbanes-Oxley starting this summer. And Michael Rasmussen, an analyst at Forrester Research Inc., estimated that about a third of the clients he works with have put an investigative response plan in place, including the use of business intelligence tools and other technologies to monitor ERP and e-mail systems for evidence of potential wrongdoing.

Universal Health Services Inc., a King of Prussia, Pa.-based company that operates hospitals and other medical facilities in various states, already has several fraud-detection systems in place that should now be able to help it meet the mandates set by Sarbanes-Oxley, said CIO Linda Reino.

For example, to prevent altered paychecks from being cashed, Reino said Universal Health has a homegrown system running on an IBM AS/400 server connected to applications at the bank that supports Universal's payroll operations.

Manny Abascal, a partner at Latham & Watkins LLP in Los Angeles, said that continually reviewing financial data will be a key facet of Sarbanes-Oxley compliance. "Some companies are thinking ahead so that if they find themselves in this position [where fraud is suspected], they're better able to find the data," he said.

TRACY AUSTIN says Mandalay doesn't plan to invest in forensics.

Pricing for Oversight's monitoring tools starts at $85,000 and, depending on the number of end users, can go up to about $200,000, according to CEO Patrick Taylor.

Other vendors of forensics tools include Guidance Software Inc., Consul Risk Management Inc. and Addamark Technologies Inc., which this week plans to announce upgraded software for storing system log data (see story below).

Mandalay Resort Group in Las Vegas provides gaming agencies with information to demonstrate its data-protection procedures. But CIO Tracy Austin said those efforts haven't used computer forensics, and the hotel and casino operator hasn't made plans to invest in the tools to aid in Sarbanes-Oxley compliance. For now, Mandalay "is primarily focused on documenting internal controls," Austin added. 45779

TIPS

Forensic Firsts

GATHER input from business and IT managers on the kinds of data that should be monitored for fraud.

DEVELOP an action plan for automating the process of checking systems for fraud and storing the results.

CRAFT a formal response plan so you're not caught off-guard if fraud is identified.

Software Emerges for Retaining System Log Data

Until recently, there have been few options available for users looking for ways to store system log data to comply with laws on retaining records and controlling access to data. But that's starting to change.

San Francisco-based Addamark Technologies this week will introduce a new version of its specialized database for log information, with new features designed to address the data-retention requirements of laws such as Sarbanes-Oxley, the Gramm-Leach-Bliley Act and the Health Insurance Portability and Accountability Act.

Omnisight 2.0 will let companies collect, compress, store and review event data collected from an array of systems and security devices, said Kevin Harahan, director of product security at Addamark. The captured information can include application and transaction logs, Web activities and security event data.

Omnisight also offers capabilities for identifying violations of corporate policies, reviewing suspicious systems activity and performing forensic analysis for security purposes, Harahan said.

Addamark isn't the only vendor offering such tools. Intellitactics Inc., a Reston, Va.-based vendor of software for correlating different security incidents, last month added a storage component designed to preserve raw data about security events in a compressed form. Consul Risk Management in Herndon, Va., offers a similar product. Prices for the tools typically start at about $50,000.

Such capabilities are crucial, said Troy Aswege, assistant vice president of information systems at Blue Cross Blue Shield of North Dakota.

As a Medicare provider in 12 states, the Fargo-based health care organization has to retain certain types of log data for varying lengths of time. It's now using Addamark's software to collect the required information from its mainframes and switches, and Unix, PC and Web servers.

"We're talking about thousands upon thousands of transactions daily," Aswege said. "Without something like this, I'm not sure how we would be able to do it."

Michael Rasmussen, an analyst at Forrester Research, said compressing terabytes of raw log data to a fraction of its original size is much less costly and more efficient than storing it in traditional relational databases.

– Jaikumar Vijayan

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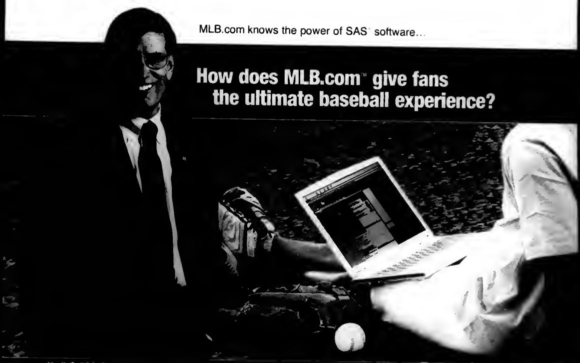

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Continued from page 1

Clarke

ard A. Clarke, the Bush administration's former top adviser on cybersecurity, faulted the government's inability and cultural reluctance to share critical intelligence data. Those faults allowed key clues to al-Qaeda's plans to go unnoticed, he claimed.

And in an exclusive interview with *Computerworld* after the hearing, Roger Cressey, Clarke's longtime deputy at the White House, said there are indications that the same problems are beginning to surface again.

In his book *Against All Enemies* (Free Press, 2004), Clarke writes of the FBI's lack of an IT infrastructure. "There was no way for one agent to know what information another agent had collected, even in the same office," he wrote. "Local police departments . . . had far more advanced data systems than the FBI."

That lack of IT support at the FBI played a direct role in allowing at least two of the Sept. 11 hijackers, who were known by the FBI to have had links to al-Qaeda, to enter the U.S. undetected by either Clarke's office or the CIA, according to Clarke.

RICHARD A. CLARKE claims that an inadequate IT infrastructure at the FBI helped two 9/11 hijackers with known al-Qaeda links get into the U.S.

"In retrospect, for [the FBI] to have had this information somewhere in the FBI and not told me I still find absolutely incomprehensible," Clarke told the commission, adding that he has a complete lack of confidence in the agency.

Samuel Berger, President Clinton's former national security adviser, testified earlier in the day that "the mechanisms of information sharing within the FBI and between the FBI and the rest of the government were even worse than I thought they were."

The FBI's inability to share data was in stark contrast to other agencies that routinely filled his secure e-mail in-box with hundreds of reports daily, Clarke said. Perhaps more important, Cressey said that while there was an initial period after Sept. 11 during which the FBI was improving its capabilities, agents and intelligence officials are now telling him that they're starting to see "a retrenchment" into old habits. "The walls that came down after 9/11 seem to be going up again," he said.

Conflicting Outlooks

Although the hearing was flush with partisan attacks against Clarke's alleged hidden motives for releasing his book — a scathing critique of the Bush war cabinet — during the presidential campaign, Clarke stayed on message, claiming that his attempts to raise awareness of the terrorist threat were repeatedly stymied.

At one point, he said, he became so frustrated with the cultural and political obstacles to improving homeland security and data sharing that he asked to be reassigned to the newly created position of adviser to the president for cybersecurity.

"I thought cybersecurity was — and I still think [it] is — an extraordinarily important issue for which this country is very unprepared," said Clarke. "And I thought perhaps I could make a contribution if I worked full time on that issue."

However, in his book, Clarke hints at a similar feeling of frustration working on cybersecurity issues — frustration that would lead him and Cressey to "quit the administration altogether."

Cressey said there were "striking similarities" between the frustration he and Clarke felt working on terrorism issues and the political obstacles they eventually came up against working on cybersecurity. "The watering down of the National Strategy [to Secure Cyber Space] was further confirmation that some people just were not serious about making this a priority," Cressey said. **45781**

Continued from page 1

BrainShare

here last week. The stack includes file, print, storage, directory, Web development and other services [QuickLink 37843].

The company also announced the availability in mid-April of an open beta of ZENworks 6.5 to manage both Windows and Linux desktops.

MORE ONLINE

IBM and HP sign agreements with Novell on SUSE Linux.

QuickLink 45723
www.computerworld.com

The event's 6,000 attendees appeared to be overwhelmingly supportive of Novell's adoption of Linux. Older NetWare users said they came to the show to learn about the new Linux management and operating system capabilities now being offered by Novell, while many younger Linux developers said they were glad to have Linux distributed by a major vendor with global sales and service forces.

Dale Llewellyn, manager of enterprise applications at SPX Corp., said the Charlotte, N.C.-based industrial products manufacturer next month will deploy Novell software on 27 Linux-based servers. The $2 million project, in which SPX will use Novell's Nsure and Extend products for secure identity management, is expected to lower the company's IT administration costs, he said.

The directory services servers at SPX run on Red Hat Enterprise Linux 2.1, but an eventual migration to OES is "not out of the question," Llewellyn said. OES will run the SUSE Linux kernel that Novell gained with its acquisition of SUSE Linux AG in January [QuickLink 42574].

SPX acquired 26 businesses last year and sought a cost-effective way to integrate operations, including 40 ERP systems, with a focus on secure identity management, Llewellyn said.

Brian Moss, senior systems engineer at Cardinal Glass Industries Inc. in Eden Prairie, Minn., said he came to BrainShare to learn all he could about the open-source MySQL database, which he wants to use to replace Microsoft Corp.'s SQL Server as a means of lowering costs. The glass manufacturer has about 80 servers running NetWare and Novell ZENworks products that serve 1,000 employees, he said.

"I just hope Novell will keep going with this Linux vision," said Moss, who began using NetWare in the 1980s. "It's definitely positive."

Fredrik Carlsson, an integrator at Iftech Network AB in Goteborg, Sweden, took note of the young faces of the Linux developers at the conference and commented on how they and the Linux products are already helping revitalize Novell.

"I'm here to learn anything I can about Linux," Carlsson said. "Linux is a good direction and is a really nice mix for the NetWare crowd. NetWare is clean and cheap, and my customers are always asking why the Windows clients have to be so expensive."

According to Novell CEO Jack Messman, the company was able to advance the delivery of what had previously been called NetWare 7.0 by a full year because of the resources it gained with the acquisitions of SUSE Linux and Linux desktop vendor Ximian Inc. Those acquisitions made available more than 200 additional developers to port Novell applications to the Linux kernel, Messman said.

6,000 attendees, old and young alike, appeared to be overwhelmingly supportive of Novell's adoption of Linux.

Pricing for OES won't be announced until late this year. However, Novell spokesman Bruce Lowry said existing NetWare maintenance and upgrade protection plan customers will be entitled to SUSE Linux Enterprise Edition.

Pricing on ZENworks 6.5 won't be disclosed until sometime after the public beta is released, Novell officials said. The update will provide Ximian Red Carpet Enterprise and ZENworks Patch Management in one package for Windows and Linux desktop and server management. **45763**

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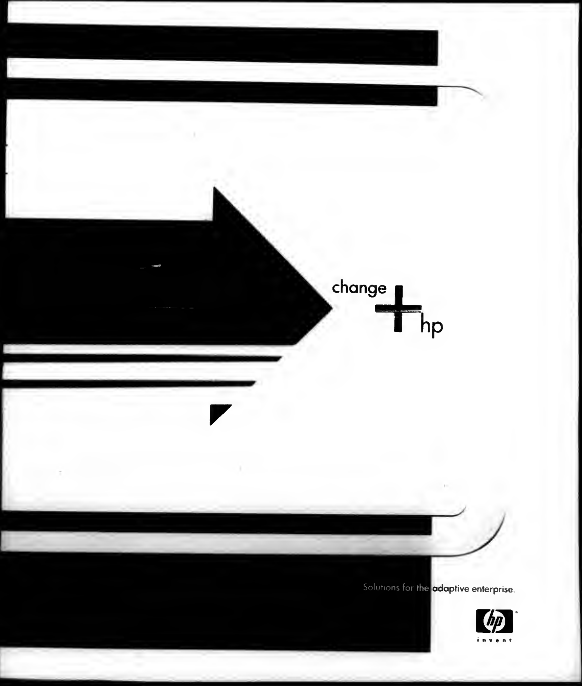
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MARYFRAN JOHNSON

No More IT Projects

NO MORE WHAT? Have I lost my mind? No, just my tolerance for the stigma of slapping an "IT" label on projects that would be far better served by more accurate, less legacy-driven descriptors. Such as? How about "customer project," "compliance project," "supply chain project" or "process improvement project"?

[illegible] is editor in chief of Computerworld. You can contact her at [illegible]

Call it whatever fits best, as long as you avoid that dreaded tech label that continues to wall IT off from the business, making senior executives ask, "Why does this cost so much?" instead of, "What value are we getting here?" We need to be moving briskly toward the day when business people stop viewing IT as a cost center and a resource albatross and see it for what it truly can be: a creator of value and a driver of change.

Yet bridging the communication gap between business folks and IT people seems to be a never-ending tale of two steps forward and three steps back. That's what it felt like to me last week, as I was reading yet another of those maddening stories about how IT and the business still can't get their alignment act together [QuickLink 45598]. I swear we've written at least one of those stories every year since Noah led that first pair of aardvarks out of the data center and onto the ark.

This latest alignment lament surfaced in a survey of 200 IT managers by Deloitte Consulting and IDG Research Services Group (a *Computerworld* sister company). It found that a pitiful 10% of them feel that their companies are "extremely successful" at aligning IT plans with corporate strategies. And 65% of the survey respondents voiced complaints about the business folks failing to communicate with them.

Fortunately, there are some hopeful signs of change under way, which I saw firsthand last week at the Houston CIO Executive Summit. More than 400 CIOs and senior IT executives gathered to talk about leadership and the business alignment issues around IT governance, regulatory compliance, security and project management.

"We don't have technology projects, because all of our projects have elements of technology in them," said Deborah Dinsmore, senior vice president and CIO at Sterling Bank, who spoke on a panel at the conference. "The business units own the projects."

The same is true at Houston-based Smith International, which supplies products and services to oil and gas companies. CIO Jim Stanley said he makes a point of tying all of his technology spending to tangible assets and benefits. "We've been successful at getting the business to see technology as assets," he said. "When you look at it that way, you're deciding if the investment is worth it — or if you're throwing your money away."

At Burlington Resources, one of Houston's largest oil and gas companies, CIO Rick Diaz also considers it vital to move IT "beyond project oversight" and align it with the complex decision-making processes that drive the entire business. "IT projects are business projects, and they need to compete with each other and with the alternatives," Diaz noted. "Our governance council understands they can spend on IT or on a drilling project. What they have to ask is, 'What will be more transformational for the company?' "

And that's exactly the question you want business executives to be asking about IT spending.

Now, maybe it sounds like a minor move, this title tweak from "IT project" to "business project." But the battle to align IT and business is being fought one company, one project, one IT success story at a time. Why not get started now? 45747

PIMM FOX

Start With Strong Contracts

SO YOU THINK you don't need legal advice. You're producing IT products and services, and you're reeling in customers. High fives and champagne all around.

But you're no lawyer, and you may not be aware that faulty software, a bum Web site or a clunky multimedia application can land you a hefty lawsuit.

You need to protect yourself with contracts that have terms that guard against problems before they happen.

Inadequate or nonexistent liability limitation can be a minefield. Four major areas typically trip up IT companies, according to Simon Halberstam, a London-based lawyer who specializes in IT.

[illegible] is a freelance writer in Santa Barbara, Calif. Contact him at [illegible]

First, imagine what things a customer might claim have gone wrong with your work. Your goal in constructing a contract should be to reduce liability if your software malfunctions. You don't want to be held responsible for customers' lost business or for third-party lawsuits.

The second area involves potential investors, who will perform rigorous due diligence. Part of that will involve looking over your customer contracts. If you're legally exposed, your chances for getting funding could be hurt.

Third, board members and top executives need indemnity insurance. But without the right contracts to guard the company, getting indemnity insurance might be difficult.

Finally, the legal work-arounds that many high-tech firms take won't stick. Borrowing contracts or cutting and pasting contracts from one IT segment to another are plain dumb tactics. You'll find out how dumb when you're sued and your lawyer tells you your contracts are out of date.

By now you're wondering how much this legal armor costs.

Traditional lawyer fees can be a shock, but Halberstam has decided to be an IT entrepreneur himself, offering many of these contracts at reduced rates. A division of his firm, London-based Sprecher Grier Halberstam LLP, has developed a Web site (*http://weblaw.co.uk/*) where you can purchase services and contracts. There are different packages depending on the types of advice and contracts you need.

Richard Wall, finance director at Staffordshire, England-based Advanced Network Technologies Ltd., uses Halberstam's online repository for employee contracts, terms and conditions for reseller agreements, protection of intellectual property, and the language in software licenses.

Wall, whose company makes a desktop deployment tool, said he prefers to sign up for a block of legal time that gives him access to Halberstam as well as to the contracts.

"There might be cheaper stuff on the Internet," said Wall, who does business in the U.K. and South Africa, "but I wanted someone who specialized in IT law and was reassured the contracts were current."

Whether you go to the Web or a lawyer, make sure your contracts are as good as your software *before* you sign up your first customer. 45640

DAVID MOSCHELLA

Two Paths for The Future of Computing

IT WAS ONE of those days when you wonder if you're spending too much time on the conference circuit. The topic seemed important enough: the future of software licensing. But while the vendor panelists were all sufficiently rehearsed, it was obvious that they were struggling to find something new to say.

The lady from Sun predicted that the emergence of a true open-source software stack would eliminate a huge chunk of today's licensing costs. The gentleman from Salesforce.com argued that once software becomes a utility-like service, many of today's software management problems will simply disappear. Inevitably, the chap from Computer Associates added that because customers like choice, a variety of economic models will surely be required.

All fair enough, but all things you've probably heard before. However, as I started to doodle and examine the ceiling panels, it occurred to me that these themes are actually much more in conflict than they initially appear. While open-source software and utility computing have become the two most heavily promoted trends in IT architecture, I hadn't previously realized how fundamentally at odds these ideas really are.

Consider that the desire for open-source software stems largely from the beliefs that customers often aren't well served by closed, proprietary, single-vendor software and that making source code freely available can result in better, cheaper, more flexible products. In contrast, the argument for utility computing is based on the assumption that customers should be shielded from the underlying complexity of software whenever possible. Effective businesses should use applications, not tinker with programs.

These two philosophies suggest sharply different future scenarios. The open-source community believes that by banding together, the world's programmers can break the hold suppliers have traditionally had over the IT business, greatly reducing both software licensing and switching costs. Utility computing presents a much more vendor-friendly vision, where suppliers are largely responsible for technology development and delivery.

Stated bluntly, in a services-driven environment, there would be little real need for the open-source endeavor. Vendors would be able to afford expensive development teams and proprietary innovation, since the cost of this work could be spread across a large number of customers. Conversely, the more the open-source model succeeds, the more likely it is that customers will keep their IT work in-house, to the clear detriment of utility-style providers.

Of course, it's hardly surprising that, other than Microsoft, virtually all of today's leading IT vendors — IBM, Sun, Hewlett-Packard, Oracle — enthusiastically support both models. Naturally, they want to shape each approach to their advantage. Thus, as a rule, they support open-source initiatives in those areas where they don't have a strong market position and promote utility computing where they do. Why would they behave otherwise?

Consequently, the real question is which of these two visions IT customers will find more attractive. In the end, neither will be an absolute winner, but the market impact of each will likely vary depending on the time frame. Over the next few years, the open-source community will prove to be the much more vital force, and the utility/grid concept will be criticized for its excessive supplier hype. However, a decade from now, the services model might well dominate, with open-source activity looking increasingly like a legacy domain.

Sometimes the best thing about a conference is simply the time you get to think. 45170

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More columnists and links to archives of previous columns are on our Web site **www.computerworld.com/columns**

READERS' LETTERS

Gauging Outsourcing's Human Element

THANK YOU for publishing the article "Offshore Outsourcing Poses Privacy Perils" [QuickLink 44910]. Organizations and their executives swayed by "industry trends" continue to overlook the many hidden costs and risks of outsourcing, both domestic and offshore. One significant risk absent from the article is the impediments that offshore outsourcing presents to conducting background checks, which are done seldom enough in North America, let alone in other countries.

Being able to ascertain precisely who will have access to critical, confidential and private information is vital to being able to protect that information. Background checks can reveal important indicators of people's motives and character that ought to enter into the equation when evaluating outsourcing opportunities and risks. Trying to conduct background checks of individuals in another country with very different laws, cultural expectations and business models amplifies the risks to information in the hands of third parties. Contractual obligations between corporate entities are certainly necessary, but contracts are hardly sufficient to protect against the human element, whether it's the owners and executives of a trusted third-party company or the employees and contractors working for that company.

Sharon Polsky
President, Project Scope Solutions Group, Calgary, Alberta, info@projectscope.com

The Real Drivers

SORRY, MR. CLINE. It's not that the privacy issues are overblown but that the technology leaders tend to focus on, well, technology ["The RFID Privacy Scare Is Overblown," QuickLink 44795]. The result is that they allow technology, and not society, to drive decisions. My firm deals with tens of thousands of customers. I can assure you that they have privacy concerns. Whether we think they are real or not is immaterial.

Bruce Boyce
Director, MIS, Alexandria, Va.

Outsourcing Isn't Always the Answer

CERTAIN THINGS, like compiler writing and Web development, can be sent offshore, but most large projects that automate business functions are doomed to failure if outsourced. Business operations are too complex to be understood by someone on the other side of the world. Developers must live and breathe with the people they are developing applications for. It's the only way to truly understand how businesses operate. Managers who think otherwise are only deluding themselves.

John Hemmer
JA Hemmer & Associates, Syracuse, N.Y.

Resource Request

I AGREE WITH letter writer Vishwa M. Bhargava that the market is very dynamic and workers need to continue learn new skills [Readers' Letters, QuickLink 44674]. I only wish that American companies put more emphasis on retraining and retaining rather than offshoring to save a few bucks.

Paul K. Dick
Former DBA, Columbus, Ohio, Pauld@sbcglobal.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

For more letters on these and other topics, go to **www.computerworld.com/letters**

QUICKSTUDY
Data Cubes
A data cube is a type of multidimensional matrix that lets users explore and analyze a collection of data from many different perspectives, usually considering three factors at a time. **Page 32**

SECURITY MANAGER'S JOURNAL
Reeling in the Security Recruits
Contrary to his low expectations, some high-quality prospects for security positions show up at a weekend IT recruiting fair held by Vince Tuesday's company. **Page 34**

QUOTE OF THE WEEK
"Some pundits – and some technology vendors – assert that DBMSs have become commodities, and that DBMS innovation is either dead or irrelevant. They're wrong.
– Curt A. Monash, columnist, page 36

FRONTLINE

An inside look at how one of Symantec's security operations centers protects clients from cyberattacks.

IT'S THREE O'CLOCK on a Friday afternoon, and Tim Hillyard is monitoring an ongoing cyberintrusion into the network of a major financial institution in the Northeast.

Hillyard, a former U.S. Army intelligence analyst, leads a team of a dozen cybersecurity analysts, all of whom are monitoring similar attacks. But neither Hillyard nor his analysts work for the financial firm that's being targeted. Hillyard is a team leader at Symantec Corp.'s Security Operations Center (SOC) in Alexandria, Va. And the financial institution does not even know that anything unusual is happening.

Hillyard stares at a row of computer screens, all of which display a software application known as the Analyst Response Console (ARC). The color-coded user interface provides alerts and data to help analysts focus on the most critical events at any given moment. Working through the interface, the team of analysts then either enters recommendations that appear immediately in a client's Web portal or advises an engineer to block specific traffic on a client network.

"We bring in the source IP address, the source port, the destination IP address, destination port, protocol and the rule option," explains Hillyard as he responds to the attack in real time. "What I'm looking for are a few key things, such as what direction is the traffic going. Just by looking at the ARC dashboard, I can tell that this attack is an inbound attack on Port 135. Then I can actually look at the rule settings for the firewall to see what it did."

Fortunately for the financial institution under attack, the traffic was dropped at the firewall. But what if the traffic had been allowed into the network? According to Hillyard, he could have then drilled into the raw data being captured by the client's intrusion-detection system.

"This is the data that is flying across the wire in real time," he says as he digs through the packet data displayed on the screen. In this case, he finds the code word *meow*, which indicates the presence of the Blaster or Welchia worm. "If this traffic had been accepted, I could immediately open up an event ticket and assign it to the engineers to block the traffic and alert the client."

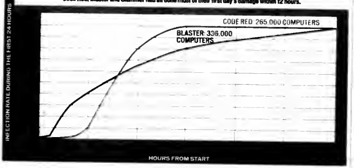
This process is repeated hundreds of times a day at the Symantec SOC — one of several such facilities used to manage security for customers in 65 countries. A relatively small cadre of security experts in each center is using cutting-edge technology to bolster security and expand the capabilities of Symantec's customers around the world. Three shifts of ap-

Continued on page 26


SETTING NEW NETWORK SECURITY PRIVILEGES FOR 860 USERS? THAT'LL TAKE DAYS...WEEKS...

BLASTER, SLAMMER AND CODE RED GROWTH OVER DAY 1

This graph illustrates how quickly analysts in Symantec's SOC must react when a serious virus infects the Internet. Code Red, Blaster and Slammer had all done must of their first day's damage within 12 hours.



Continued from page 23

proximately a dozen analysts, and an equal number of security engineers, monitor more than 200 million alerts and device logs for 600 companies, many of which are among the biggest names in the Fortune 500. To protect against the threat of social engineering, Symantec declines to reveal the exact number of analysts on each shift.

MISSION CONTROL

Technology is what makes it possible for a staff of a few dozen to monitor vulnerabilities and attacks and to alert so many customers simultaneously within Symantec's service-level promise of 15 minutes.

A 42TB online data repository enables a relatively small group of analysts to continuously study attack trends across the entire Internet. Data from Symantec's more than 20,000 points of presence on the Internet floods into the database, where it's crunched and analyzed for virus, worm and other attack trends before major problems can arise.

"We've created a neighborhood-watch program across the Internet so that if you do something against one of my customers, I can flag you globally across my entire client base in an automated manner as a known bad offender," says Grant Geyer, vice president of managed securityservices at Symantec and manager of the SOC.

This proprietary capability, which has been developed in-house by Symantec's 30 software developers, extends the expertise of client companies by providing deep correlation technologies that enable real-time analysis of the data being monitored by the security devices, Geyer says. "This offers clients a greater degree of security than they could ever do on their own," he says, adding that most companies don't have the resources to gather and analyze that much data. "And that's the value of managed security services: to add intelligence to the real-time aspect of computer security," says Geyer.

GRANT GEYER, vice president of managed security services at Symantec, took over for Amit Yoran, who joined the U.S. Department of Homeland Security. Geyer's analysts monitor security for 600 clients from an Alexandria, Va.-based operations center

Visiting the Symantec SOC is a little like venturing aboard the starship *Enterprise*. Visitors pass through a secure circular outer chamber and then enter biometric identifiers and personal identification codes just to gain access to the client viewing area, located behind a large window.

The centerpiece of the mission-control area is a large, rotating digital globe that provides real-time data on every country in which Symantec sensors are recording aberrations in Internet traffic that are targeting its clients' networks. The feeds are color-coded from yellow to red, signifying progressively greater levels of standard deviation in the amount of traffic from a particular country.

A number posted to the right of each country name indicates the number of unique IP addresses from which the SOC has recorded attacks during the past 24 hours. The system then maintains a running average for 30 days. This enables Symantec to advise its clients when they should block traffic from a particular part of the world.

Security engineers positioned in the center of the mission-control area act as remote administrators, conducting patch and performance management for clients. In many cases, they have control of the client's security devices, such as firewalls and intrusion-detection systems, and they can make configuration changes in real time when necessary.

In addition to broadcasting news feeds from CNN, rotating screens to the right and left of the control room show different attack patterns that are occurring at various customer sites. Engineers sit in the middle, surrounded by analysts who are alerted every time a spike in a particular type of traffic is detected.

"The technology normalizes, strips down all of the data to its bare essentials and then goes through a process of collating, aggregating and mining it so that an analyst sees simply the results of that data mining," explains Geyer.

THE INTERFACE

Symantec has developed and deployed a variety of mechanisms for communicating threat information to customers and for ensuring that their client communications can be authenticated.

For example, automated text-to-voice alerts allow for notification in less than 15 minutes of a client company's entire global customer base and its registered points of contact for emerging threats. In addition, companies can receive e-mails about emerging threats with links to customized Web portals that provide more-detailed information. The Web portals, in turn, receive all of the current posted warnings, the Symantec Response team's analysis of the emerging threats and recommendations for action.

RSA Security Inc. ID tokens authenticate client access to the Web portals, which allow clients to further restrict and customize access based on workgroup. The same secure tokens are used through the phone system, which provides each analyst with a pop-up window on his computer that provides proof of authentication.

THE BIG PICTURE

Real-time analysis and early warning are big selling points for managed security services such as Symantec's. Just as nothing an analyst does or types is allowed to disappear into the ether — every keystroke is recorded — so it is with the seemingly harmless events around the Internet that may eventually emerge as the next major worm or virus outbreak. Even minor events in distant parts of the world are monitored and studied for their potential effects on Symantec's customers.

MORE ON THREATS

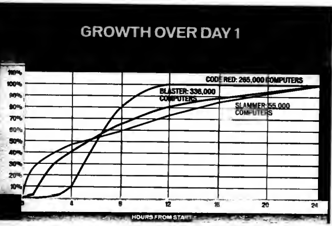
For more Internet security information, visit our Web site

QuickLink 45745
www.computerworld.com

Corilynn Arnold is one of the global security analysts who performs such investigations. She says it's her job to "look at the forest" as opposed to the individual trees that represent customer networks and systems. And that type of analysis is used to alert companies to potential problems, such as virus and worm outbreaks, sometimes weeks in advance of vulnerability announcements by software vendors.

Today, Arnold is keeping tabs on a spyware worm that uses a freeware tool called NetDevil to remotely control systems. "Its intent is to propagate itself like any other worm, but it's only doing it in a very selective manner," explains Arnold. "It's kind of like being a bank robber and targeting only banks where you see a robbery in progress. That's a change from worms in the past. The worms that we're seeing now have auto-update features and are designed to create massive command-and-control networks."

And what about yesterday's worms, such as Code Red and Blaster? They're still alive and well and propagating, says Arnold. "It's like a human virus," she says. "Nothing ever really dies." **45487**



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RSA Security Inc. ID tokens authenticate client access to the Web portals, which allow clients to further restrict and customize access based on workgroup. The same secure tokens are used through the phone system, which provides each analyst with a pop-up window on his computer that provides proof of authentication.

THE BIG PICTURE

Real-time analysis and early warning are big selling points for managed security services such as Symantec's. Just as nothing an analyst does or types is allowed to disappear into the ether — every keystroke is recorded — so it is with the seemingly harmless events around the Internet that may eventually emerge as the next major worm or virus outbreak. Even minor events in distant parts of the world are monitored and studied for their potential effects on Symantec's customers.

MORE ON THREATS
For more Internet security information, visit our Web site:
QuickLink 45745
www.computerworld.com

Corilynn Arnold is one of the global security analysts who performs such investigations. She says it's her job to "look at the forest" as opposed to the individual trees that represent customer networks and systems. And that type of analysis is used to alert companies to potential problems, such as virus and worm outbreaks, sometimes weeks in advance of vulnerability announcements by software vendors.

Today, Arnold is keeping tabs on a spyware worm that uses a freeware tool called NetDevil to remotely control systems. "Its intent is to propagate itself like any other worm, but it's only doing it in a very selective manner," explains Arnold. "It's kind of like being a bank robber and targeting only banks where you see a robbery in progress. That's a change from worms in the past. The worms that we're seeing now have auto-update features and are designed to create massive command-and-control networks."

And what about yesterday's worms, such as Code Red and Blaster? They're still alive and well and propagating, says Arnold. "It's like a human virus," she says. "Nothing ever really dies." 45487

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SABRE TAKES Extreme MEASURES

By using extreme programming practices, Sabre Airline Solutions has reduced bugs and development times for its software products.

By Gary H. Anthes

Sabre's XP Initiative

SABRE AIRLINE SOLUTIONS had many years of experience with its AirFlite Profit Manager, a big modeling and forecasting package that many airlines use to wring more income out of flight schedules. Even so, Release 8 of the software was four months late in 2000 after final system testing turned up 300 bugs. The first customer found 26 more bugs in the first three days of its acceptance testing, and subsequent joint testing by Sabre and the customer uncovered an additional 200 defects.

"Our Sabre person on-site was as upset with the quality as the customer was," recalls Vinit Karandikar, a principal in Sabre's Airline Products Development group.

Sabre's experience with Release 8, which had almost 500,000 lines of code, isn't unusual. Software quality guru Watts Humphrey, a fellow at the Software Engineering Institute in Pittsburgh, estimates that commercial software typically ships with one to eight defects per 1,000 lines of code.

But a lot has changed in the development labs of Sabre Airline Solutions, part of Sabre Holdings Corp., a $2 billion air-travel systems company based in Southlake, Texas. The software development firm has embraced extreme programming (XP), a controversial development framework in which testing precedes coding and programmers work in pairs. Sabre Airline Solutions has 62 software products with 13 million lines of code, and it claims that XP has dramatically boosted both the productivity of its 300 developers and the quality of their work.

For example, fewer than 10 bugs surfaced in Release 10 of its Profit Manager software in the two months after it began shipping to airlines in December 2002. Now, 16 months later, just 100 defects have been found. Release 10 was written in Java, while Release 8 was written in C and C++. But Sabre says it was XP, not Java, that produced the dramatic quality improvements.

And the initial benefits from developing better code may be eclipsed by long-term cost savings, Karandikar says. For Release 10, Sabre assigned just three developers to support 13 customers, while Release 8 required 13 people to support 12 customers.

The evidence is anecdotal so far, but there are enough anecdotes at Sabre to make a compelling case for XP. In another project, the company converted the user interface of its AirServ airline cabin provisioning optimization system from C++ to Java for the Web, a two-year effort that required rewriting about 100 graphical user interface programs. Programmer productivity jumped 42% — as measured by the number of labor hours required for each screen — after the development team switched to XP halfway through the project (see chart, next page).

FIELD REPORT

In yet another project, the Host Access Tool, which provides a common application programming interface for accessing legacy host systems and has 15,000 lines of code, was written from scratch using XP practices and has remained bug free in the 20 months since

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7:00pm	Welcome Reception

TUESDAY, MAY 25

7:00am	Buffet Breakfast
8:00am	Welcome and Opening Remarks
8:15am	Opening Keynote Presentation
9:00am – Noon	General Sessions
Noon	Luncheon and Special Presentation
1:30pm – 3:30pm	General Sessions
3:30pm – 5:00pm	Concurrent Breakout Sessions
5:30pm	Solutions Showcase & Expo with Buffet Dinner

WEDNESDAY, MAY 26

7:00am	Buffet Breakfast
8:00am	Opening Remarks
8:15am	Opening Keynote Presentation
9:00am – 12:15pm	General Sessions
12:15pm	Solutions Showcase & Expo with Buffet Lunch
1:30pm – 3:45pm	General Sessions
3:45pm – 5:00pm	Technology "Spotlight" Innovation on Stage
6:00pm	Gala Evening

THURSDAY, MAY 27

7:30am	Buffet Breakfast
8:30am	Workshops
11:30am	Conference Concludes

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- ❑ 500 - 999
- ❑ Under 500

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- ❑ Under $100 Million

Your organization's annual IT/IS budget for all IT/IS products
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- ❑ $500 Million - $999 Million
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it shipped. Similarly, Sabre's Peripheral Manager, which manages interaction between host systems and peripheral devices, has 28,000 lines of code and has had just four bugs show up in 15 months.

Establishing Best Practices

Sabre Airline Solutions adopted XP in 2001. With its new model, Sabre does iterative development in small, simple steps. The company uses two-week iterations, and customers see a new release every one to three months. Features, called "stories," are expressed in user terms and must be simple enough to be coded, tested and integrated in two weeks or less.

Automated unit tests (against the programmer's criteria) and broader acceptance tests (against customer requirements) must be passed at the end of each iteration before the next can begin. Unit and acceptance tests for each feature are written before the feature is coded. If a developer has trouble writing a test, he doesn't clearly understand the feature.

Actual coding is done in pairs by teams in open labs, promoting collective ownership of code, although individuals sometimes do the simplest tasks. Programmers are re-paired frequently, often every day or two. They sign up for the tasks they want to do and the person they want to pair with.

Every project team has an "XP coach" and an application subject-matter expert called the XP customer. The XP customer stays in or near the programming lab all or most of the time. He decides on and prioritizes product features, writes the stories for programmers and signs off on the results.

"Refactoring" code — rewriting it not to fix bugs or add features but to make it less redundant and more maintainable — is strongly encouraged. Sabre says the concept hardly existed at the company before XP because it was too difficult.

Finally, simplicity is paramount. The simplest things are done first, and code is never made more complicated in order to accommodate an anticipated future need that may never materialize.

Brad Jensen, senior vice president for airline product development at Sabre, says the quality improvements come largely from XP's continuous testing and integration. "Every two weeks what you've completed has got to be production-ready," he says. "You code as you test. You actually write an automated unit test before you code the unit, so if bugs do creep in, you find out about it right then."

Damon Hougland, director of airline products and services, says pair programming is hard for some to swallow at first because it suggests that programming costs will double. But the method actually reduces cost, he says, because the extra time it takes to write a line of code is more than offset by the reduced effort required for testing, fixing bugs and maintaining the code.

And, because at least two people know every chunk of software, and because Sabre reassigns and re-pairs people frequently, there is always a backup on hand. "Everyone on the team works on every part of the system," Hougland says. "You have the weaker people paired with the stronger people, and business knowledge and coding knowledge are transferred very quickly."

Beyond XP

XP doesn't encompass all the practices that a software development organization should follow, Hougland says. "XP really focuses on what [programmers] do," he says. "It doesn't cover the traditional project management you have to do with customers, such as customer communications, and a lot of the testing we do is not covered in XP. A lot of people try XP and fail because they assume that XP will do everything for a development methodology."

Sabre doesn't yet follow XP 100%. XP doctrine says that both unit tests and acceptance tests should be automated. Unit tests at Sabre are conducted with the open-source JUnit testing tool, but many of the more complex acceptance tests are conducted with manual scripts. "We've struggled to automate them, and we have made some progress," Hougland says.

Jensen compares XP to the Capability Maturity Model for Software, saying XP covers many SW-CMM practices. The difference, he says, is that CMM tells organizations what they should do while XP is more oriented to saying how to do those things. "CMM is all about management processes; it's less about technical processes, the techniques of coding," says Jensen.

Jensen, who sponsored the adoption of XP at Sabre Airline Solutions, says he considered using other so-called agile programming methods, such as Agile RUP, a version of IBM's Rational Unified Process; Scrum, an iterative, user-oriented methodology; and Feature-Driven Development. "None of them are as fully developed as XP," he says.

Jensen says he especially likes XP metrics because they come in user terminology rather than the technical jargon of some methodologies. "With XP, we are checking off features and stories that I can understand like a business person," he says. "There's a lot of increased communication between the customer and the development team because everything that's being prioritized is in terms the user can understand."

Jensen acknowledges that his developers deviate somewhat from pure XP practices. Sometimes the XP customer has to travel and can't be in his lab full time, as XP doctrine demands; refactoring old legacy code can be extremely difficult; testing isn't as fully automated as XP would have it; and acute deadline pressure from customers can lead to cutting corners.

But when asked if he has reservations about any of the 12 core XP practices, Jensen says, "They are all good practices. The only thing you could possibly argue is whether you really can afford to do all of them all the time. But if there's any compromising, it's not intentional."

45442

Adding Up the Savings

HOW PRODUCTIVITY IMPROVED

Sabre's effort to rewrite the GUIs for its AirServ software took off after the company migrated to XP practices; productivity improved by 42%.

Note: Sabre adjusted labor hours, normalizing for GUI complexity, learning-curve effects and other factors.

AirServ GUIs	Before XP (2001)	After XP (2002)
GUIs rewritten	67	91
Labor (hours)	23,531	17,276
Hours/GUI	270	190

Productivity gain: 42%

EXTREME QUALITY

Using XP cut defects dramatically for three software products. The biggest program, Profit Manager, to date has one-fifth the number of bugs found in the previous version.

Product	Lines of Code	Released	Defects to Date
Profit Manager Rel. 10	500,000	Dec. 2003	100
Host Access Tool	15,000	June 2002	0
Peripheral Manager	28,000	Dec. 2002	4

Surviving XP Culture Shock

Even the most ardent XP evangelists at Sabre Airline Solutions acknowledge that XP is not for everyone.

"As soon as we implemented XP, we knew who our prima donnas were, because prima donnas can't survive in an XP environment," says Damon Hougland, director of airline products and services. "Some of them left the organization, and some adjusted and grew."

"When I heard about this, I thought, 'If we do XP, I'm quitting,'" recalls Chris Sheppard, a senior programmer. "The accountability is higher, but that's good once you get past the pride part of it and see it's for the betterment of the team. And it's helped my career; with cross-training, I've learned more than I would have sitting in my cube by myself."

Because some of the tenets of XP are counterintuitive, it's important at the outset to bring in knowledgeable and enthusiastic trainers and coaches, says Brad Jensen, Sabre's senior vice president for airline product development. Sabre contracted Object Mentor Inc. to give developers a one-week class on XP. Object Mentor spent another week sitting with programmers in the development labs.

"I was very skeptical at first," recalls Wesley Williams, a senior developer and XP coach. "Doing a lot of testing was good, but writing the test first was a little weird. And the pairing? That was going to slow us down."

But Williams says he was won over by the end of the one-week training class. "What I liked best was that we had some junior people on the team and they came up in skills very quickly. So the thing I hadn't liked about pairing, I now saw as a huge advantage."

– *Gary H. Anthes*

SABRE'S BEST PRACTICES

XP practices are just one part of Sabre's development methodology

QuickLink 45633

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QuickLink 45634
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Data Cubes

DEFINITION

A data cube is a type of multidimensional matrix that lets users explore and analyze a collection of data from many different perspectives, usually considering three factors (dimensions) at a time.

Building a Data Cube

This example uses sales figures from XYZ Co., which makes many kinds of widgets. For each sales transaction, we know four pieces of data:

- **Which types of widget were involved (style, color, size and so on)**
- **Store or sales agent**
- **Sales amount**
- **Geographic region or territory**

In a real-world situation, we would also know many other data items, including:

- **Quantity**
- **Customer**
- **Cost to XYZ for each widget**
- **Order date**
- **Shipment date**
- **Method and cost of shipping**

Any of these pieces of data can function as a dimension in a data cube. We can take any two dimensions and produce a 2-D table (1). Thus we can correlate or track sales against individual stores or sales agents. Add in a third factor, such as price, and we can produce a 3-D data cube (2) that allows us to see how much each store or sales agent is selling in addition to which type of widget. Swap in geography (3), and we can now see who is selling where.

BY RUSSELL KAY

WHEN WE TRY to extract information from a stack of data, we need tools to help us find what's relevant and what's important and to explore different scenarios. A report, whether printed on paper or viewed on-screen, is at best a two-dimensional representation of data, a table using columns and rows. That's sufficient when we have only two factors to consider, but in the real world we need more powerful tools.

Data cubes are multidimensional extensions of 2-D tables, just as in geometry a cube is a three-dimensional extension of a square. The word *cube* brings to mind a 3-D object, and we can think of a 3-D data cube as being a set of similarly structured 2-D tables stacked on top of one another.

But data cubes aren't restricted to just three dimensions. Most online analytical processing (OLAP) systems can build data cubes with many more dimensions — Microsoft SQL Server 2000 Analysis Services, for example, allows up to 64 dimensions. We can think of a 4-D data cube as consisting of a series of 3-D cubes, though visualizing such higher-dimensional entities in spatial or geometric terms can be a problem.

In practice, therefore, we often construct data cubes with many dimensions, but we tend to look at just three at a time. What makes data cubes so valuable is that we can index the cube on one or more of its dimensions.

Relational or Multidimensional?

Since data cubes are such a useful interpretation tool, most OLAP products are built around a structure in which the cube is modeled as a multidimensional array. These multidimensional OLAP, or MOLAP, products typically run faster than other approaches, primarily because it's possible to index directly into the data cube's structure to collect subsets of data.

However, for very large data sets with many dimensions, MOLAP solutions aren't always so effective. As the number of dimensions increases, the cube becomes sparser — that is, many cells representing specific attribute combinations are empty, containing no aggregated data. As with other types of sparse databases, this tends to increase storage requirements, sometimes to unacceptable levels. Compression techniques can help, but using them tends to destroy MOLAP's natural indexing.

Data cubes can be built in other ways. Relational OLAP uses the relational database model. The ROLAP data cube is implemented as a collection of relational tables (up to twice as many as the number of dimensions) instead of as a multidimensional array. Each of these tables, called a cuboid, represents a particular view.

Because the cuboids are conventional database tables, we can process and query them using traditional RDBMS techniques, such as indexes and joins. This format is likely to be efficient for large data collections, since the tables must include only data cube cells that actually contain data.

However, ROLAP cubes lack the built-in indexing of a MOLAP implementation. Instead, each record in a given table must contain all attribute values in addition to any aggregated or summary values. This extra overhead may offset some of the space savings, and the absence of an implicit index means that we must provide one explicitly.

Other Considerations

From a structural perspective, data cubes are made up of two elements: dimensions and measures. I've already explained dimensions; measures are simply the actual data values.

It's important to keep in mind that the data in a data cube has already been processed and aggregated into cube form. Thus we normally don't perform calculations within a data cube. This also means that we're not looking at real-time, dynamic data in a data cube.

The data contained within a cube has already been summarized to show figures such as unit sales, store sales, regional sales, net sale profits and average time for order fulfillment. With this data, an analyst can efficiently analyze any or all of those figures for any or all products, customers, sales agents and more. Thus data cubes can be extremely helpful in establishing trends and analyzing performance. In contrast, tables are best suited to reporting standardized operational scenarios. 45491

Kay is a Computerworld contributing writer in Worcester, Mass. You can reach him at russkay@charter.net.

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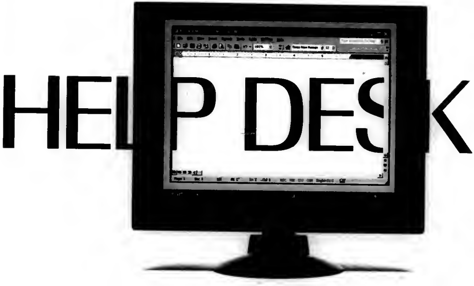
HELP DESK

Reeling in the Security Recruits

A weekend college recruitment program attracts some top-notch prospects for IT security positions. By Vince Tuesday

I LIKE TO THINK OF MYSELF as a dedicated worker, but I do have limits. I don't mind weekend work if we suffer a major incident, but last weekend I was asked to be an assessor for my company's college recruitment program. I suppose I could have declined, but my cooperation was expected. I dragged myself into the office, along with my grumpy attitude.

SECURITY MANAGER'S JOURNAL

Our human resources department runs an annual program to recruit IT talent from the best schools. HR reps visit the colleges and administer a long multiple-choice exam to assess candidates' technical, verbal and logical-thinking skills. We then invite the cream of the crop to our offices for a weekend of testing and interviews.

The candidates spent all day Friday taking network, coding and personality tests. Then the candidates with scores in the top 10% were put up in a swanky hotel for the weekend.

Saturday was filled with a series of team-building challenges followed by interviews. My job was to assess the candidates' performance in the team challenges and interview them to see how well they would fit into our company — and my team. I don't have any permanent positions open, but I do have openings for a summer intern and a nine-month placement.

I'm sworn to secrecy about the challenges we put the candidates through, but I can say that the teams all faced surprises halfway through so we could see how well they coped with stressful situations.

The team scores they got in the challenges didn't matter. We were looking for individuals who displayed leadership, negotiation ability and sensitivity to others during the team exercises, not the team that achieved the best result.

The filtering at the earlier stages worked; the candidates were all frighteningly bright. It was almost worth missing out on a free weekend to see them perform. But having so many stars on each team also led to friction. They were all pretty nervous, and I suppose the reviewers wandering past with clipboards didn't help.

The teams had a tendency to split into smaller groups of people who agreed with one another rather than reaching a team consensus. I think they worried that if they gave in from their original positions, we'd downgrade them. In fact, the opposite was the case.

After the challenges were over, we interviewed the candidates. Each candidate had two interviews with different staffers.

> **"We were looking for individuals who displayed leadership, negotiation ability and sensitivity to others during the team exercises, not the team that achieved the best result."**

Certainly, these graduates had amazing résumés. I recall how little I'd done when I was leaving college. The bar has risen since those days. All of the candidates had started their own money-spinning projects alongside their studies or worked summers at prestigious companies. One had worked at Sun Microsystems building software development kits, and another had registered patents while working at IBM.

Found Out

Nonetheless, one candidate who had started his own project didn't do well in our interviews. When asked to give an example of a risky decision that didn't work out, he explained that at his start-up, he'd misrepresented early prototypes to customers as finished products but kept getting found out.

When asked how he would motivate team members he didn't have direct authority over, this candidate said shouting and screaming would be appropriate. He didn't make it into the final round, although he might have fit in well with some of our high-powered developers.

For the final round, we sent the candidates home and the IT teams started haggling about which candidates they wanted to hire. I snapped up a superb intern who'll be a great addition to our team. I also put in a bid for a slightly arrogant but astoundingly bright candidate, who I'll call Conner.

Like most prospective employees, Conner was a high-powered developer, but he made it clear in the team exercises that he could accurately spot the tricks we played on the teams. That ability is very useful in security, as you have to be able to guess what an attacker might try next.

The other groups had been put off by his habit of ordering other team members about, but the ability to herd staffers in the right direction was another green light for our IT security team.

I didn't interview Conner initially, and I didn't know if he wanted to work in security. So HR asked him to stay for the rest of the weekend and meet my team on Monday for further interviews.

I was out of the office, so I left messages for a few staffers to interview him. Looking back, it was a mistake not to be there to introduce him. When I returned, the staffers told me Connor was the weirdest interview ever.

"You were interviewed by Vince over the weekend. How did that go?" the interviewer asked.

"No, I wasn't," Conner replied. True enough, I'd assessed him only from afar.

Looking a little confused, the staffer continued with an easy question: "OK, why do you want to work in IT security?"

"I don't. I'm a developer," he replied. Apparently, HR hadn't told Conner anything about the job, so he didn't realize what the position was or why it might suit his skills.

But with that reply, the door closed on Conner getting into the IT security team. The inability of HR to prepare him and my dropping the ball by leaving it in the hands of others cut short his potential career with us.

Hopefully, the team exercise experience and the morale boost of being invited back for more interviews will stand him in good stead elsewhere. ■

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum. QuickLink a1580

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Security Bookshelf

How to Break Software Security, by James A. Whittaker and Herbert H. Thompson; Addison-Wesley, 2003.

This book is not a hacker how-to guide. Rather, it's a useful introduction to the fascinating field of software security testing. While software testing focuses on required features, security testing considers the unintended things software might do.

The book details 19 categories of attacks that can be carried out against software. Some, like "manipulate the application's registry values," are Windows-specific, but most are not. I found the coverage comprehensive and the style readable.

The book also includes a CD with software tools, like Holodeck, that allow the tests to be carried out. I found this incredibly useful for setting up a software security testing team within my company, and I would recommend it to any software tester who wants to expand beyond just checking that a specification has been implemented.

– Vince Tuesday

Viral Marketing Bypasses Filters

ViralMarketingTool.com has released ReachOut, "viral marketing software" that the vendor says marketers can use to bypass Web content and spam filters. Online marketers can preload 52 advertisements into the program and offer it to users via Web site downloads or in e-mail attachments. Users who install the software are automatically shown a new message every week for a year, according to the Littleton, N.H.-based company. ReachOut also lets users send messages to friends and colleagues, according to the company. The program sells for $199.

BRIEFS

Enigma App Now Runs on Linux

Enigma Inc. in Burlington, Mass., last week released the latest version of its Enigma 3C service scheduling and content management application, which will now run on Linux. Version 8 Release 2 is designed to help companies deliver parts and maintenance information, including online diagrams and repair manuals, to their service staff members, according to Enigma. Also included in the new version, which starts at $250,000, is support for IBM WebSphere Application Server Version 5.

Akonix Updates IM Security Product

Akonix Systems Inc. in San Diego has added new dynamic update features to its Enforcer 3.1 instant messaging and peer-to-peer security application, which blocks unauthorized access to IM and P2P networks. The dynamic protocol and program updates will eliminate system downtime and save staff labor time, according to the company. New features also allow Enforcer to keep up with the fast-changing protocol definitions used in the signatures of the major peer-to-peer and instant messaging applications. Pricing for Enforcer 3.1, which is available now, starts at $1,000 for 50 users.

System Tracks Mobile Assets

Teletouch Communications Inc. in Tyler, Texas, has launched a new generation of wireless mobile asset-tracking products with start/stop motion detection. In addition to traditional location-reporting features, these tracking products can notify fleet managers when a trailer is in motion and when it breaks a designated "geofence" (the borders of a specific area, such as a terminal), Teletouch said. Pricing for the devices is less than $350.

CURT A. MONASH

Optimize What You Know About Databases

SOME PUNDITS — and some technology vendors — assert that database management systems have become commodities and that DBMS innovation is either dead or irrelevant. They're wrong. DBMSs haven't stopped evolving, and they aren't close to being all alike.

In particular, the major relational DBMS vendors are pursuing technical differentiation in three important areas:

Lower-cost analytical processing. DBMS vendors are enhancing their query optimizers to relieve much of the burden on database administrators, as well as to directly improve query performance. They're also improving processing speed though specialized indices and materialized views.

Real-time analytical processing. In some cases, these enhancements make it practical to run analytics straight off a production database, greatly facilitating real-time analysis. This is especially important in CRM, where it allows customer-specific pricing and confirmed product availability. Real-time analytics have also become cost-effective in some supply chain, logistics and portfolio/risk analysis applications.

Nonrelational data types. Specialized data types are crucial to many applications — geographic data for marketing, mineral exploration and homeland security, or genomic data for drug research, for example. Text data is used for a broad range of search and document applications. And among the horde of new XML-based applications, a small but significant fraction depends on actual XML data storage.

Much of this differentiation is closely connected to the query optimizer, the brain of a relational DBMS. Any improvement in how a DBMS processes queries — such as better parallelism, a new kind of index or a new kind of data type — must be understood by the optimizer, or the DBMS can't take advantage of it.

All optimizers are not created equal, and understanding what a particular one does and doesn't do gives a lot of insight into the capabilities of the overall DBMS. So to understand differences among DBMSs, it's useful to know a bit about how optimizers work.

For each query, the optimizer determines which indices and table columns should be read and joined, what kinds of joins should be used and in what order the joins should be performed. Modern query optimizers are all cost-based, i.e., the optimizer estimates the cost of each operation contained in each reasonable query path, adds them up and chooses the cheapest path. Costs are computed for I/O, in-memory processing and interprocessor communication, based on summary statistics about the distribution of specific values in the underlying data.

Unfortunately, these estimates aren't perfect, so optimizers often fail to find the best query plan. Database administrators then need to laboriously hand-optimize SQL code or optimizer parameters. In response, DBMS vendors are rolling out a slew of enhancements that help find and fix the worst of suboptimized queries. And in another major aid to database administrators, optimizers are being exploited to recommend new indices and other database-tuning choices, traditionally the province of third-party tools.

The most direct benefits of better optimizers are faster queries and lowered database administrators costs. But equally crucial are the advanced access methods that optimizers enable. For starters, every major enhancement that lowers the cost of analytical processing depends on added intelligence in the optimizer. There are plenty of those; top-end DBMSs are replete with bitmaps, star-schema indices and more exotic aids to complex data-warehouse-style queries.

Most important over time may be materialized views, supported by IBM, Oracle and Microsoft alike. These are precomputed query results, stored like actual tables and typically updated on a near-real-time basis. In principle, materialized views can support efficient analytic queries from within online transaction processing databases in near real time without badly affecting OLTP performance or recopying or hiding the underlying transactional data. However, their widespread use depends upon optimizers that, at a minimum, can recognize views already created or, better yet, create new ones where appropriate.

Support for nonrelational data types is also highly optimizer-dependent. Each new access method relies on its own indexing techniques, usually very different from those used for conventional relational data. Selecting and joining these data types efficiently therefore requires that the optimizer have a good cost model for a previously unfamiliar kind of index. IBM and Oracle provide capabilities to define such cost models, with Oracle's being the more flexible and comprehensive of the two.

Almost any sizable enterprise is likely to benefit from at least some advanced DBMS capabilities. Potential advantages include easier tuning, faster analytic processing or support for nonrelational data types. With luck, the particular features you can best use will be implemented in your organization's preferred brand of DBMS. But if they're not, you may want to explore selective use of alternative DBMS suppliers. Either way, it's worthwhile to spend some time tracking developments in database technology. And optimizers are a good place to start your exploration. 45666

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Methodical Merger
Wachovia avoided disruptions and retained customers by taking a slow and steady approach to integrating banking systems with its 2001 merger partner First Union. **Page 41**

Career Watch
Oregon State University's Curt Pederson fields reader questions about what it takes to reach CIO status. Plus, a look at demand for IT professionals with business intelligence skills. **Page 44**

OPINION
No More Excuses
CIO Michael H. Hugos says IT agility isn't as difficult as so-called experts make it look. He offers four simple suggestions to get your company moving in the right direction. **Page 46**

MICHAEL BARTALOS

It's Not War and Peace

WRITTEN PROPOSALS FOR NEW IT INVESTMENTS NEED TO BE SHORT AND CREDIBLE. BY ALAN S. HOROWITZ

VIRTUALLY all IT projects have one thing in common: They started off as a written proposal that sold the endeavor to upper management. Poorly written proposals usually result in unsupported projects, while a well-written plan can make the life of the CIO much easier.

To make your proposals compelling sales pieces, first presell the proposal, recommends Gerry McCartney, CIO at the University of Pennsylvania's Wharton School. That includes having conversations about the project with other senior executives to gauge their reactions and hear their concerns. "Once you put things down in writing, it's hard for people to change their positions. They can more easily change during conversations," he says.

"At the beginning of the process, ask [your business units], 'How much are you willing to pay for this?' " recommends Ken Hill, CIO at defense contractor General Dynamics Corp. in Falls Church, Va. Without this understanding, business units may say they're interested initially, only to back out when the cost analysis is done, leaving you to start again. "If I know what people have in mind, I can avoid multiple rounds [of proposal writing]," Hill says.

Preselling also includes creating a strong partnership with the business units involved, says Bob Yale, an IT principal for institutional retirement plan services at The Vanguard Group Inc. in Valley Forge, Pa. The mutual fund company's IT department goes so far as to call itself a "solutions provider" to the business units, to emphasize its willingness to partner.

Credibility is an essential ingredient for selling the proposal. "The credibility of your sales pitch has a lot to do with the process you went through," Hill says. "You want to say 'I looked at five different software packages and demoed this or that' or 'I spent a day or two to get this answer,' vs. 'I spoke to this vendor.' " It's also important to

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get feedback from the right group of users — the ones whom management trusts, he adds.

And keep the proposal focused on business. "I have never seen a proposal refused because it had too little technology conteot, but I've seen proposals refused because they had too much technology and not enough business," says Jack Keen, president of The Deciding Factor Inc., a consulting firm in Basking Ridge, N.J.

For senior executives, keep the big picture in mind. Don't say, "If we do this, someone in accounting will have an easier time reconciling financials," says Rick Schoenhals, senior director of IT for the NFL's Denver Broncos. "It has to be tied to the organization's mission and not just somebody's job function."

The key is to ideotify management's current hot buttons. McCartney says that right now, managers are interested in legal compliance issues because of recent corporate scandals; five years ago, compliance was of little interest. "Of course, [managers] always want to know how to make more money, but what are we about right now? A good CIO will be sensitive to that," he says.

Keen agrees, ooting that IT people often take a narrow view. "If it's a CRM system, they say it saves salespeople 30 minutes a day," be says. "That's fine, but you need to go beyond the value to the immediate user. Why should manufacturing care? Why should HR care? Articulate the value in terms of the entire enterprise."

Drivers And Risks

The type of investment will dictate the proposal's content. John Mahoney, a former CIO and now an analyst at Gartner Inc., suggests addressing the business drivers and the risks. He divides IT investments into the following three categories:

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RISK: Moderate

Frontier Investments

They introduce an innovation, such as creating a product line or moving into new territories.

BUSINESS DRIVERS: A unique capability or competitive differentiator

RISK: High

The Proposal Template

Although proposals differ, nearly all contain certain information. They start with the executive summary. "You have to explain, quick, in one paragraph, why you are asking for the money, what you will do with it and what's the benefit to the company," says Douglas Lewis, senior partner at Edge Consulting Group LLC in Atlanta.

Think of this as the "elevator pitch," recommends Keen, the one you can give your CEO during an elevator ride. The summary gets 10 times more visibility than the proposal itself, he says, adding, "Human beings want things summarized."

The executive summary is followed by a more detailed explanation of what you plan to do and how you plan to do it. "The senior executives normally won't read this, but their subordinates will, and it gives the upper execs a warm, fuzzy feeling that you know what you're doing," Lewis says.

But don't get overly caught up in details. "The less complicated it is, the less detailed it is, the more likely it is to go through," says Lewis. "The more padding it has, the more it makes people suspect."

How long is too long? Keen says that for a million-dollar project, eight to 10 pages (plus appendices) is sufficient, whereas a $10,000 project needs only two or three pages.

"If you have to spend more than 10 pages explaining a project, you probably haven't fully thought through the project," says Rebecca Wettemann, an analyst at Nucleus Research Inc. in Wellesley, Mass.

Edward Setar, director of IT at the Project Management Institute (PMI) in Newtown Square, Pa., says key points of the business case should include the following:

- Organizational impacts, such as change in business processes or the number of job reductions.
- Time frame, which is always very important to executives.
- Costs, including initial investment, one-time costs and ongoing operational costs once the technology is implemented.
- Payback metrics, which might include return on investment, net present value or internal rate of return.

Careful Metrics

The business proposal will need some metrics, but be careful. Use data from vendors or consultants sparingly. "Say something like, 'The vendor tells me we'll get 10% improvement in efficiency, but I spoke to two users wbo got 5%, so I'll assume 3%.' This creates credibility," Wettemann says.

"Understand what metrics your CFO is looking for, such as ROI, net present value and the like," Wettemann continues. She warns against building a business case on IT-orieoted metrics such as total economic impact, return on opportunity and cumulative ROI.

And if you can't quantify something, don't ignore it — something IT people often do. Give best-case and worst-case scenarios.

"There's always an investment before a payoff, and a lot of times people focus on the payoff and not the investment, which is the cost of the project's implementation," says Marcy Wintrub, vice president of technology infrastructure services at State Street Corp., a financial services company in Boston. Pay attention to the costs of transitioning from the old to the new, including the cost and risk of doing nothing, she adds.

Finally, establish an exit strategy from the beginning, recommends General Dynamics' Hill. If you don't, you could be deep into the project and find that it's in trouble, and you'll have to fight to get the project completed. You can't be objective about an exit strategy under those circumstances, he says.

And if the proposal is shot down? You can still come out ahead if the proposal was credible. "Even if turned down, what IT gains is that it's taken a leadership role and identified to executive leadership there are opportunities available," PMI's Setar says. "IT is not just waiting to be told what to do." 45460

Horowitz is a freelance writer in Salt Lake City. Contact him at alan@ahorowitz.com.

Code-Red Investments

Methodical Merger

A slow and steady IT integration effort helped Wachovia and First Union hang on to customers during their merger. BY THOMAS HOFFMAN

WHEN BIG BANKS MERGE, Wall Street typically looks for a speedy integration of operations to obtain millions of dollars in cost savings as fast as possible. But executives at Wachovia Corp. took a very different approach when the bank merged with its larger, cross-state rival, First Unioo Corp., in April 2001.

Although Charlotte, N.C.-based First Union had grown steadily through acquisitions since the 1970s, the bank had suffered a major blow following its April 1998 purchase of Philadelphia-based CoreStates Financial Corp. First Unioo had rushed to convert CoreStates customers to a new branch-banking environment called Future Bank, but the abrupt change confused and irritated many customers, which led to higher-than-normal attrition rates and lower earnings.

CASE STUDY

"The rushed integration was the heart of the CoreStates problem," says Jean Davis, senior executive vice president of IT, e-commerce and operations at Wachovia. So instead of trying to meld their systems and operations together within a year, as is common with many big bank mergers, Wachovia and First Union executives opted for a more methodical integration effort over the course of two and a half years. The goal was to leave more room for systems testing, prevent operational disruptions and maintain customer satisfaction.

"This deal was too big for us to use a big-bang approach, so we broke it into pieces," says Frank Robb, Wachovia's chief technology officer.

The slower integration approach appears to have paid off. While there were some negligible customer defections in the first couple of months after the deal was announced, the ratio of accounts opened vs. accounts closed improved steadily throughout the integration effort between April 2001 and August 2003, says Davis.

The prolonged integratioo effort went so well that financial industry analyst George Tubin at Needham, Mass.-based TowerGroup touts it as "the blueprint for future deals."

"From a market perspective, [Wachovia] really focused on the customer, with as little customer impact and as little customer loss as possible," says Tubin.

For the integration effort, teams from Wachovia and First Union had to decide which of the two companies' systems would prevail for each operation, such as direct deposits or check processing. As it turned out, whichever system could handle a larger processing volume was chosen at least 80% of the time, says Davis.

One exception was the adoption of Wachovia's mainframe-based check-imaging system. Although First Union had a considerably larger retail banking presence, the Wachovia system was one of the first in the nation to offer customers online access to imaged checks. Plus, Wachovia's 5-year-old system was more stable than the distributed system that First Union began using about six months prior to the deal, says Davis.

"Rarely did we take Option C and buy a new system, given the risks and costs that this would pose during the integration process," says Martin Davis, Wachovia's corporate CIO.

Steady Progress

Wachovia executives also decided to convert customers to various systems using a state-by-state approach, working from south to north beginning with Florida in November 2002. The rollout included extensive systems testing and employee training to help customer service agents respond quickly to questions about products and services.

Florida is the biggest state in which the combined First Union/Wachovia operates, but it's also the smallest in terms of the number of branches that had to be converted, says Robb. The bank decided to build on its experiences there and move on to states like North Carolina and Virginia, where the banks handle larger transaction volumes, according to Robb. The state-by-state conversion effort was completed in Virginia last July.

The new Wachovia was also careful during the integration effort to try to retain top-performing staffers, including its IT workforce. About 150 to 200 IT workers have left the bank since the merger — a relatively small number for a big bank merger. About 75% of those people were laid off, and the remainder left voluntarily, Jean Davis says. Most of the affected workers were doing application development, an area "where we had more people than were required," she adds.

Of the IT staffers who were let go, the split was roughly 50/50 between First Union and Wachovia employees, Davis says. "We had a stated philosophy that neither company would take too big a hit," she explains.

Still, Davis acknowledges that there were some tough times during the integration. Some of the bank's 4,500 global IT workers were regularly asked to work around the clock and do systems conversion testing on weekends.

Wachovia took a couple of steps to help prevent employee burnout. For instance, following the Florida conversion, many IT workers on the systems conversion team were given a few weeks off over the holidays to spend time with their families. And after the Virginia cutover last July, Wachovia IT workers were given extra time off in August "to recharge their batteries," says Davis.

In the end, Wachovia was able to meet its goal of generating $890 million in annual cost savings over a three-year period — and it even gave back some of the budget money that had been allocated for the integration effort, she says.

More important, the orderly approach enabled Wachovia to continue to deliver services to its customers without any glaring disruptions. Says Davis, "By taking the time to plan the integration, we made the right decisions to serve and retain our customers." 45469

IT GOVERNANCE AT WACHOVIA

MANAGEMENT

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The Presentation

Tips for presenting your proposal to senior executives:

FIND OUT what the audience's hot buttons are.

GAIN the audience's respect by using 80% to 90% business words and concepts, while almost hiding the underlying technology.

BE MERCIFUL. Don't walk in with a stack of slides a mile high.

DITCH the PowerPoint presentation. To get funding, you have to tell a compelling story.

END the presentation with a list of the next steps that will be taken, which adds pressure to make a decision.

Drivers And Risks

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Code-Red Investments

AN ESPECIALLY DIFFICULT challenge is figuring out how to get the business to pay for necessary upgrades of IT infrastructure when that infrastructure isn't particularly exciting compared with competing business investments. But Brian Leenbach, a senior vice president at Delta Technology [illegible] the IT unit of Delta Air [illegible] have found a way [illegible] make the [illegible] [illegible] product?) and the [illegible] of failure. Eventually, this [illegible] card with red, yellow and green [illegible] for the network, servers, storage [illegible] Red [illegible]cates high-risk [illegible] urgently need upgrading. When [illegible] executives see the scorecard, "the [illegible] really gets their attention," [illegible] says.

– Mitch Betts

MethodicalMerger

CONVERSION NUMBERS

- 11.5 million accounts
- 4,500 ATMs
- 2,600 branches
- 75,000 signs

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Steady Progress

Wachovia executives also decided to convert customers to various systems using a state-by-state approach, working from south to north beginning with Florida in November 2002. The rollout included extensive systems testing and employee training to help customer service agents respond quickly to questions about products and services.

Florida is the biggest state in which the combined First Union/Wachovia operates, but it's also the smallest in terms of the number of branches that had to be converted, says Robb. The bank decided to build on its experiences there and move on to states like North Carolina and Virginia, where the banks handle larger transaction volumes, according to Robb. The state-by-state conversion effort was completed in Virginia last July.

The new Wachovia was also careful during the integration effort to try to retain top-performing staffers, including its IT workforce. About 150 to 200 IT workers have left the bank since the merger — a relatively small number for a big bank merger. About 75% of those people were laid off, and the remainder left voluntarily, Jean Davis says. Most of the affected workers were doing application development, an area "where we had more people than were required," she adds.

Of the IT staffers who were let go, the split was roughly 50/50 between First Union and Wachovia employees, Davis says. "We had a stated philosophy that neither company would take too big a hit," she explains.

Still, Davis acknowledges that there were some tough times during the integration. Some of the bank's 4,500 global IT workers were regularly asked to work around the clock and do systems conversion testing on weekends.

Wachovia took a couple of steps to help prevent employee burnout. For instance, following the Florida conversion, many IT workers on the systems conversion team were given a few weeks off over the holidays to spend time with their families. And after the Virginia cutover last July, Wachovia IT workers were given extra time off in August "to recharge their batteries," says Davis.

In the end, Wachovia was able to meet its goal of generating $890 million in annual cost savings over a three-year period — and it even gave back some of the budget money that had been allocated for the integration effort, she says.

More important, the orderly approach enabled Wachovia to continue to deliver services to its customers without any glaring disruptions. Says Davis, "By taking the time to plan the integration, we made the right decisions to serve and retain our customers." 45469

IT GOVERNANCE AT WACHOVIA

It's a classic problem in IT governance. When business lines have divisional CIOs, it's easy to wind up with duplicate systems and it's hard to achieve companywide efficiencies.

Wachovia tackled that problem last year by appointing a corporate CIO, Martin Davis, to coordinate technology decision-making among the business lines, such as retail and corporate banking.

For example, Wachovia still has five divisional CIOs, "but we're making sure that we don't have four different corporate loan systems in place," says Jean Davis, senior executive vice president in charge of technology operations and e-commerce at Wachovia.

And six months ago, Martin Davis established a divisional information officer forum, a set of quarterly meetings where the divisional CIOs get together to discuss the bank's IT strategy. "We have what we now call the seamless IT organization," he says.

Thomas Hoffman

Know YOUR Know MY

Social networking software can be used to make business connections that lead to new deals. **BY ALAN S. HOROWITZ**

L [illegible]

So [illegible] networking [illegible] InterAction, a CRM product from Interface Software Inc. in Oak Brook, Ill. The software showed that, unbeknownst to his German team, the firm's [illegible] team had good contacts at the target company. The [illegible] made the introduction, and a deal is now in [illegible].

This all came about thanks to social networking technology, which mines databases of contact names, interests, former employers, colleges attended and other information to identify [illegible] network of acquaintances.

Like instant messaging, social networking is a hot technology that started in the consumer market (examples include Friendster.com and Meetup.com) but has now emerged with business-oriented applications. It could turn out to be a big success in busi[illegible]

[illegible] past [illegible] person [illegible]

[illegible] relationships," says [illegible] CEO and president [illegible] Santa Monica, Calif. [illegible] Inc., [illegible] was recently acquired by online conglomerate InterActiveCorp. Dhillon figures that his software cuts the average time it takes a salesperson to reach a buyer by 35%.

Antony Brydon, CEO and president of Visible Path Corp. in New York, claims that people using his software have reduced the sales cycle by 27% and increased the close rate by 22%, while the average deal size has gone up 10%. Efficiency is improved, he says, because cold calls are replaced with personal introductions, and salespeople get access to decision-makers.

That's how it worked for Curtis Estes, founding principal at Strategy Benefits Group LLC, a financial planning practice in Los Angeles.

Estes tried over and over again to meet a certain wealthy individual, without success. Then he went on Spoke, a social networking service from Spoke Software Inc. in Palo Alto, Calif., where he found 10 people on the network with connections to this person.

Within days, Estes had an introduction. "I expect Spoke will increase our revenues by 25% this year," he says. "It saves countless hours and dramatically increases our ability to get in front of our best prospects."

IT'S WHO YOU KNOW

While the primary business application for social networking technology seems to be for generating sales, the technology also holds the promise of being an effective tool for employee recruitment, says Charlene Li, an analyst at Forrester Research Inc. in San Francisco. She notes that "40% to 50% of people find jobs through referrals, and social networks tap into that referral network."

Inside or Outside The Firewall

The technology comes in two basic forms: outside the corporate firewall for making public connections, or behind the firewall as sort of a giant corporate index-card file.

Examples of the public version include services from LinkedIn Ltd. in Mountain View, Calif., and Ryze Ltd. in San Francisco. You register with a service, provide information about yourself and then upload information about people you know.

If you want to meet someone at a certain company in a certain department but don't have a name — like the head of sales at the company — you enter the target, and the software will search your contacts, your contacts' contacts (assuming they're in the database) and so on, usually up to a maximum of three to six degrees of separation.

If the service identifies a path from you to your target, you contact the person you know and explain why you want to meet the target, and then that person decides whether to pass your request down the line.

Assuming that everyone is willing, your request finally lands in the in-box of your target, having been passed on by someone the target knows.

Ryze has given a boost to Un-Marketing.com, a Toronto-based marketing consultancy. Owner Scott Stratten reports that his firm has gained 15 paying clients in the past six months from the service.

Working behind the firewall, products such as InterAction, Visible Path and Zero-Degrees will mine only the contacts in your company's database.

Cynthia Reaves, an attorney at Honigman Miller Schwartz and Cohn LLP in Detroit, says she knew of an executive at a prospective client whom she wanted to meet but had no contacts at that company.

Using InterAction, Reaves learned that one of the partners at her law firm knew this executive; an introduction was made, and a six-figure deal resulted. "[InterAction] allows us to cross-market services from various departments," she says.

The Downside

But privacy can be an issue, since the contact data may include personal details and some contacts may not want to be pestered. The vendors deal with this by giving users the ability to limit what others can learn about their contacts and by allowing them to refuse to pass on a request for an introduction.

Also, entering contact information can become a time-consuming hassle and a task that's easily ignored once initial enthusiasm wanes. Some products let users automatically upload information from Outlook, Notes and other software programs. Others automatically scan e-mails and other data for contact information.

Participation requires "getting people to feel there's a general personal advantage for them," says 3i's Perry. Even then, he acknowledges that people are lazy and prone not to maintain their contacts. So 3i has trained assistants to enter business card information quickly, freeing their bosses from the chore.

Despite the hype and hope, social networking is still an emerging technology. "It's an early-adopter market now," says Denis Pombriant, an analyst at Beagle Research Group in Stoughton, Mass. "I think [social networking] is going to be important, but it may be a [CRM] feature, not a free-standing system." 45456

Horowitz is a freelance business and technology writer in Salt Lake City. Contact him at alan@ahorowitz.com.

MY PEOPLE Know YOUR PEOPLE

Social networking software can be used to make business connections that lead to new deals. BY ALAN S. HOROWITZ

LONDON-BASED international venture capital firm 3i Group PLC wanted to buy part of the chemical business of a German company going through a management upheaval. The problem was that 3i's German team lacked good contacts at the chemical company, says Rod Perry, 3i's director of technology investing.

So 3i turned to the social networking function of InterAction, a CRM product from Interface Software Inc. in Oak Brook, Ill. The software showed that, unbeknownst to 3i's German team, the firm's Italian team had good contacts at the target company. The Italian team made the introduction, and a deal is now in the offing.

This all came about thanks to social networking technology, which mines databases of contact names, interests, former employers, colleges attended and other information to identify a network of acquaintances.

Like instant messaging, social networking is a hot technology that started in the consumer market (examples include Friendster.com and Meetup.com) but has now emerged with business-oriented applications. It could turn out to be a big success in business — generating sales leads and connecting deal-makers — or it could flop like "push" technology did in the 1990s. But corporate IT managers should at least be aware of the phenomenon.

In essence, social networking is "a search engine for people and relationships," says Jas Dhillon, CEO and president of Santa Monica, Calif.-based ZeroDegrees Inc., which was recently acquired by online conglomerate InterActiveCorp. Dhillon figures that his software cuts the average time it takes a salesperson to reach a buyer by 35%.

Antony Brydon, CEO and president of Visible Path Corp. in New York, claims that people using his software have reduced the sales cycle by 27% and increased the close rate by 22%, while the average deal size has gone up 10%. Efficiency is improved, he says, because cold calls are replaced with personal introductions, and salespeople get access to decision-makers.

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MANAGEMENT

Career Watch

Numbers Crunch

70%	Percentage of companies likely to overhaul IT strategy in 2004
61%	Percentage of companies that will hire a third-party consultant to help with their IT strategy overhaul
$1M	Minimum most companies plan to spend on IT strategy consulting services in 2004

Worth Repeating

I firmly believe that in the future, IT leaders will be well-respected, well-grounded business people who happen to have a second discipline called technology.

What's becoming a common practice is for the CIO to come from the business. I think that's a reaffirmation that IT is all about business.

Curt Pederson

Title: Vice provost of information services

Employer: Oregon State University, Corvallis

Q&A

Pederson is this month's guest Premier 100 IT Leader, answering a reader's two-part question on gaining the right skills for becoming a CIO. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to askaleadar@computarworld.com and watch for this column, both in print and online.

What three skills are critical to achieving CIO status in an organization? This is an interesting question for me, especially because I've served in several CIO positions. In my case, most of my competitive hiring advantage over other CIO applicants appears to be related to communication and relationship skills. I have never been the most technically savvy candidate, but I've been fortunate to have outstanding technical professionals working with me who were able to cover any technical weaknesses.

Here are the three skills I believe are critical to reaching your goal:

1. The ability to establish and maintain good relationships with IT staff, managers and those you serve. Nothing, in my opinion, has proved to be more important. In fact, when I became Oregon's first CIO (after two unsuccessful searches), to a large extent my selection was related to the fact I was able to communicate with all the stakeholders involved in the selection process. Finding someone who had the support of the governor's office, legislature, agency heads, vendors, IT staff and agency CIOs proved most important to those making the hiring decision.

2. Once relationships are built, the ability to then leverage internal and external partners in support of new infrastructure projects, system improvements and budget resources. The philosophy should be one of win-win or lose-lose, where everyone shares in the success or failure equally.

3. Being technically a mile wide and a foot deep. You should know just enough technically about all areas of IT to avoid being snowed and enough to be able to translate IT initiatives in a way that they complement the mission of the organization.

How did you go about obtaining those skills? The skills I have mentioned relate to good management and leadership skills. Many of these skills were learned and validated by taking courses, reading literature and gaining experience. The fact that most of my education has been in business and public administration appears to have been a plus at the CIO level. If all things are equal in terms of basic qualifications, most organizations will hire the person they best connect with or they think would best lead their IT organization.

Q 45455

Business Intelligence Skills in Demand

Eight out of 10 corporate CEOs are ready to pull the plug on all-out cost cutting and start spending on IT again, according to a recent survey of 456 chief executives conducted by IBM Business Consulting Services.

Better business intelligence, especially where customers are concerned, is a top priority. More than 60% of executives polled said their companies need to do a better job of capturing and understanding customer data, and more than half predicted greater customization of products by specific customer segments.

Other recent research confirms that such projects are well under way. Earlier this month, 34% of 159 IT executives polled by *Computerworld* listed business intelligence projects as their most critical IT projects. By 2005, market research firm IDC projects that the worldwide market for business intelligence software will total about $6 billion – up from $2.5 billion in 2003 – signaling a major increase in business intelligence projects. IT executives say the skills they need on business intelligence projects include systems integration, data modeling, database administration, data standardization and project management.

"BI is not just about reporting but about getting data clean," says Bob Leo, director, data management and administration at Landstar System Inc. in Jacksonville, Fla. "You have to have data consolidated, clean and put in the right format in order for it to be consumed by analytical applications." – *Julia King*

Does your organization plan to upgrade its analytical and decision-support capabilities in the next year?

Base: 607 senior financial executives

SOURCES: JOINT RESEARCH BY COMPUTER SCIENCES CORP. AND FINANCIAL EXECUTIVES INTERNATIONAL, 2003

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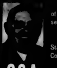
– FRANK MODRUSON, CIO, ACCENTURE LTD.

Q&A



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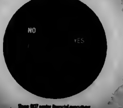

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SOURCE: JOINT RESEARCH BY COMPUTER SCIENCES CORP. AND FINANCIAL EXECUTIVES INTERNATIONAL, 2004

BRIEFS

Rewards Network Appoints Cruz CIO

Chicago-based Rewards Network Inc., a provider of loyalty programs, last week named Mario Cruz vice president and CIO. He previously served as director of IT security and operations at Rewards Network, and he has held IT management positions at Hotelworks.com Inc. and Xerox Corp.

Topologe to Offer CIO, Audit Services

Topologe LLC said last week that it will offer temporary CIO services to organizations seeking interim CIOs and to small businesses that require only a part-time CIO. The Burlington, Mass.-based company will also offer a variety of services, including IT and security audits, infrastructure planning and implementation, security solutions, project management and disaster recovery advice.

Scampas Joins Willis Group

Joanette Scampas has joined Willis Group Holdings Ltd. in New York as executive vice president, responsible for global information systems and operations. She will also serve as a member of the Partners Group, the insurance brokerage's management team. Before joining Willis Group, Scampas held senior positions at American International Group Inc., Bank of America Corp. and Chase Manhattan Bank USA NA.

Conseco Licenses CSC Software

Conseco Inc. in Carmel, Ind., has licensed three integrated software products from Computer Sciences Corp. aimed at streamlining back-office processing and reducing costs. With CSC's support, Conseco will convert and replace more than 20 systems with CSC's CyberLife, PerformancePlus and Visual Product/Modeling System software.

MICHAEL H. HUGOS ▪ PEER TO PEERS

No More Excuses

A RECENT ARTICLE in *Computerworld* indicates that IT is struggling with agility [QuickLink 45244], while other articles have cited the diminishing influence of the CIO. As a CIO myself, I find this alarming. Why is IT struggling? Why are we losing influence in business? I have some thoughts about that.

IT is a tough job, but it's no tougher than other jobs in business. The folks who run factories sure have a tough job; the people who handle customer service have a tough job; and for a really tough job, try doing what salespeople do. We IT people have had a privileged position based on the mystery and prestige of technology.

Michael H. Hugos is CIO of Network Services Co., a distribution cooperative company in Mount Prospect, Ill., and author of *Essentials of Supply Chain Management* (John Wiley & Sons Inc., 2003). He can be reached at [illegible].

In the past four years, that has changed, and now business wants us to be just as accountable as the rest of the company. That means no more excuses.

The fact that we need to get the cooperation of end users in order to change business processes and become agile is nothing new, nor is users' reluctance to give up their time from their real jobs and get engaged in IT. These situations aren't unique to IT, nor are they valid excuses for our failure.

What would we think of salespeople who said that they couldn't meet their quotas because customers and prospects didn't want to make time to see them and understand their products? It's the salesperson's job to get out in front of customers and sell the benefits of the product. Isn't this also true for IT?

Many IT people seem to think being agile means using some new product such as portfolio management software. Agility arises from a state of mind, a way of looking at and responding to the world, an ability to respond quickly and creatively to a continuously changing environment.

We IT people need to learn to use what we already have in more effective ways.

We need to improve our understanding of the businesses that employ us and use our common sense to figure out how IT can help our companies increase revenues or cut costs. It's just that simple.

It isn't helpful for Meta Group, Gartner or any other think tank to tell me how complex it is to achieve agility. To earn their keep, they need to start coming up with simple ideas that we can all work with. Let me offer some ideas of my own that my company is successfully using:

Quickly build systems that are good – not perfect. There is an ongoing debate in many companies: "Should we build it fast or build it good?" In this time of rapid change, the answer is to build it fast. That means we should build systems that are good enough to get the job done but resist the temptation to overengineer them or give them features to deal with every conceivable possibility.

Let computers do the routine work. Use computers to handle the repetitious processing of routine data related to basic transactions such as purchase orders, invoices, account balances, order status and address changes. Computers can do this sort of work much better, faster and cheaper than people can.

Build high-volume and technically simple systems to support these routine transactions.

Focus people on handling the exceptions. Companies can build simple computer systems if they can use people to handle the complexity that these systems can't handle. All the system needs to do is trap the data related to an exception and alert a person to handle it.

Exception handling is interesting. It involves thinking, communicating with others and problem solving. People like doing this kind of work. Also, it's in the exceptions to the standard commodity transactions that companies find opportunities to increase their profits.

Continuously adjust systems and processes based on experience. An exception to a standard business process typically is due either to an error in the transaction data or to the emergence of a new type of transaction that the standard process isn't equipped to handle.

Regardless of the exception's cause, there is a profit opportunity if an organization can respond effectively. As people discover and eliminate causes of transaction errors, systems change accordingly, so the systems infrastructure of an agile organization is continuously evolving.

Our profession needs to drop the excuses. Nobody wants to bear them anyway. We have a great opportunity now to be a central part of the success of our organizations in this new global economy we live in. Let's get going. **Q 45623**

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Advertising Supplement

IT Careers in BioTech/Pharmaceuticals

If you check out just about any high-tech economic development zone across the country, there's one category of work common to all – biotech. The reasons are simple: millions of Americans aging, the opportunity for new medications and treatments, and the potential for jobs and prosperity.

Karena Strella, principal for Egon Zehnder executive search firm and a biotech/pharma recruiter, says the pressure is on to find the skills and talents needed to move drugs to market more quickly and to move drugs through trials in an efficient and effective manner. "They're using technology to move them through these stages," she says.

The IT skills divide into several categories. There are IT skills needed to maintain the business enterprise, but also bioinformatics where data from trials and research becomes information. "We are seeing computer savvy people go back to acquire life sciences skills and experience to fill the demand for people," Strella says. "We also are seeing more scientists who are, out of frustration, going into the tech side to develop the tools they need."

Strella says that 2003 was the lowest year ever in terms of job openings. "We're seeing 100% improvement this year in terms of assignments we're getting, as well as those our competitors are getting. The skill most in demand that we're hearing is for people who can lead technical and scientific people."

The investment in people and expansion is evident, from the building of a new headquarters campus for Cephalon, near Philadelphia, to Amgen's February grand opening of its new research and development campus in Seattle. Amgen, the world's largest biotech company, has information sciences and research positions available. The new research campus, known as Helix, combines more than 750 staff members from several different locations. It boasts of some of the latest tech advances in computerization and robotics in support of creating breakthrough therapies. Stalwart companies such as Johnson & Johnson and AstraZeneca also continue to post jobs for positions as varied as data mining and technologists to support research and the business.

Probably one of the most telling aspects of the available positions is that even the most senior research scientist listings for the companies include a formidable requirement for computer science/technology – languages, application integration and the like.

Strella is quick to point out that while the firmly established companies offer opportunities, so too do startups. "Startup companies are gaining funding to move pharmaceutical therapies into trials," she says, signaling the need for IT professionals with the complex skills required.

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Web Developer

Designs, develops applications for Insurance-Reinsurance companies regarding natural Catastrophe Analysis. Develops apps for Meteorologists for data for Weather Derivatives trading. Devs online tools for clients to analyze climate forecasts. Participates in technical design, development, implementation and testing of new and existing commercial-quality web applications. Investigates, analyzes, implements new web technologies and tools utilizing IIS, ASP, Visual Basic, XML, XSL, COM, DCOM, SQL Server, ADO, Site Server. Reqs: strong interpersonal skills; ability to work w/ team. Min Reqts: knowledge of modeling and s/w dev demonstrated by Bach. degree in CE or related field + 2 years prof. exp. in s/w development, Internet technology and/or systems implementation. Grad level work in qualified field accepted in lieu of experience if course work provides exposure to systems etc. needed to do job. $60000 annual/FT. Submit 2 resumes to Case # 200203688, Div. of Career Services, Labor Certification Unit, 19 Staniford Street, 1st Fl, Boston MA 02114

Sr Software Engineer sought by network security device manufacturer to work in Broomfield, CO and other unanticipated job sites in the U.S. to engage in full life cycle development of system security software agents and programs for high-end fault-tolerant data communications networks which accesses relational database management systems (RDBMS)on a UNIX platform. Analyze project requirements, architect and design the software system using object oriented (OOP) and procedural system design principles. Code, test and debug the software. Use SQL, C/C++ and JAVA on UNIX platform in the development process. Engage in project management as required. Requires master's in computer engineering, 1 yr exp. in the design and development of software systems accessing relational database management systems on a UNIX platform using object oriented and procedural system design principles, SQL, C/C++ and JAVA programming languages on a UNIX platform. M - F 8am - 5pm. $91,800/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and respond to JON CO5071395

Field Service Engineers. Install, maintain, and refurbish high-speed Imaging systems. Install, maintain and troubleshoot hardware and software as well as network and data storage devices to insure connectivity. Req: BS or equivalent (based on education or work experience or both) in Mechanical Engineering or Electro-Mechanic Engineering with proficiency with Xerox DT135/6135/6180 and 4135/4635 printers and WAN/LAN, TCP/IP, Ethernet, Linux, FTP, Storage, Fiber Gateway, Print Server. 40hr/wk, 8-5 and shifts. Send resume to: Service Technologies, P.O. Box 13136, Atlanta, GA 30324

PROGRAMMER/ANALYST

sought by mortgage co. in Baton Rouge, LA. Requires B.S. in Computer Science or Systems Science plus exp. Respond by resume to: HR Mgr., X/W-#10, Aegis Mortgage Corp., 10049 N. Reiger Road, Baton Rouge, LA 70809

Programmers to design software appls using RDBMS Oracle Databases, Informix-4GL, Informix Online, SQL Server, VB, Power Builder etc under UNIX OSs, program, test and debug user interfaces and supporting database objects, analyze, review and rewrite programs to increase operating efficiency and adapt program to new reqs. Require candidates with BS or foreign equiv. in CS/Engg. (any branch) & 1 yr exp. in IT. Competitive salary, F/T, travel involved. Resume to: HR, Ordusion Technologies Inc., 3883 Rogers Bridge Road, Suite 504, Duluth, GA

CS032904E-MW 1

APPLICATIONS ENGINEER to design develop, debug setup and oversee installation of total robotic/automation solutions utilizing mechanical units and controllers for Nachi FANUC MOTOMAN Kawasaki KUKA and ABB SCARA applications Denso Robots Adept and Yamaha, develop system layout concepts and renderings using computer aided tools and technology including Microsoft Office SalesLogix Quote Master OMRON PLC for Nachi RPC Allen Bradley Systems and Yaskawa PLC provide detailed specification requirements review and cost analysis of digital control systems for intelligent machines provide technical support of entire systems (hardware software and start-up) to sales internal personnel user staff and robot manufacturers Require B S in Computer/Electrical/Electronics Engineering and three years experience in the job offered or any experience providing skills in described job duties Competitive salary and benefits 40-hour/week M-F Apply with resume to Human Resource Manager Factory Automation Systems 5139 Southridge Parkway Atlanta GA 30349

Sr Systems Analysts to manage teams to analyze design develop appls using VB SQL ASP SAS MS Access etc using Windows OS perform database modeling using ERWIN create stored procedures functions triggers using T-SQL identify user problems, prepare maintenance plans, provide technical support train end-users Require MS or foreign equiv in CS/Engg (any branch) or related field with 1 yr exp in IT Programmer Analysts to analyze design test appls using OOAD C++ CORBA XML Oracle SQL Websphere Rational Rose Shell Script, etc under Windows OS develop test suites for performing regression/integration testing, prepare user docs for installing system software Require a B S or foreign equiv in CS/Engg (any branch) with 2 yrs exp in IT High salary F/T Travel involved Resume to HR Unlimi Inc 4625 Alexander Dr Ste 110 Alpharetta GA 30022

Technical Support Specialist-Coord business syst. solutions & internet serv w/computer programming to Eval company's hardware & software needs Resolve computer related problems Oversee installation operation & maintenance of all equip Determine feasibility of expanding systems operations & online services Create & maintain Internet Website BA in Systems Eng or Computer Science & 1 year of exp in job offered-40hrs per wk 10-7P Fax resume to Silver Seahorse Corporation Attn Donna Dolcim (305) 532-4993

Sr Programmer Analyst- Analyze design develop test & implement computer applications/software systems Bachelor's or equivalent in Computer Science or a related field & 2 yrs' exp in the position offered or in a related systems or applications programming positions Alternatively employer will accept 4 yrs exp in the position offered or in a related systems or applications programming position Resume to L Morrow Oneil Color Compounding 193 Commerce Place Jasper TN 37347

AGR Associates, Inc is seeking qualified computer professionl- for the following positions to work at client sites in Iowa and throughout the United States Business Objects Programmer Analyst SAS Data Warehousing Consultant Senior Project Manager Application Database Manager Oracle Database Administrator SQA Tester/Analyst, Oracle/Java Applications Programmer Analyst Database Design Administrator C++/VC++/Vitria Businessware Software Engineer We are seeking individuals with any of the following skills Sybase Oracle C++ VC++ Pro*C FoxPro SAS Business Objects Vitria Businessware Informatica Business Objects Send resume to AGR Associates Attn Human Resources 222 Third Avenue SE Suite 299-15 Cedar Rapids, Iowa 52401

Programmer-Analysts needed to dsgn implmt integrate test & support provisioning s/ware using C++ Java XML SQL JSP DB2 MQ Series SunOne & Er-Win on RedHat, perform systm dsgn for s/ware systms running on RTOS HardHat, dsgn & implmt automated test scripts using shell scripting & perl dvlp IP protocols (OSPF BGP4) Apply to Global Consultants Attn Hireme 8800 Grand Oaks Circle Suite 100 Tampa, FL 33637

Software Engineer Dsgn dvlp s/ware systms & maintain company's Artificial Intelligence systms for text feature extraction & automated email classification using SICStus PROLOG, C++ Java JavaScript Win2000 Unix Assist in dvlpmt & maintenance of company's proprietary middle tier business logic Req BS in Com Sc or AI or related field + 1 yr exp. in job offd Resume to Personnel Mgr TouchPoint Solutions, 3535 Piedmont Rd, Ste 800 Atlanta GA 30305

Network Project Manager Charlotte NC Wachovia Corp Manage telecom and infrastructure projects Reqs BA in Bus Admin Finance or MIS & 2 yrs exp in the pos off or as a Financial Analyst The 2 yrs exp must incl financial analysis working on annual budgets forecasting and chargeback in a tech services environment & negotiating telecom contracts & working w/ network engineers to coordinate business reqs M-F 40hrs/wk Send resume and cover letter to Ms Babette Robbins Wachovia Corp 809 West 4 1/2 Street Winston-Salem NC 27101 No phone calls

Technical Architect - Design develop, & architect application software using VB 6.0 COM+ and MS-SQL Req Bach deg (or foreign equiv) in Comp Sci Info Sys or closely related field w/ 1 yr exp in job offered or in the design & development of application software Bach equiv gained through work exp will be accepted Paid travel to unanticipated client sites within the U S is required 8a-5p M-F Resume to Corp HR Systemtec, Inc 246 Stoneridge Dr Ste 301 Columbia SC 29210

Senior Systems Analyst Corning Incorporated in Corning, NY seeks Senior Systems Analyst to design and develop applications infrastructure and information management systems that meet business requirements Requires Bachelor's degree in Information Management Computer Science Engineering or related field and relevant experience including work with relational databases such as Oracle SQL Server or MS Access programming languages such as Java C C++ Visual Basic or HTML and experience with object-oriented design To apply please forward your resume to stoneer@corning.com and reference opening 9542

Programmer Analysts needed Seeking candidates possessing BS or equiv and rel work exp Duties include Design code and implement software systems Exp must include 2 years working with Crystal Reports, Javascript and IIS Mail resume refs and salary reqs to Symbiosis International 3965 Okemos Road Suite B2 Okemos, MI 48864

PROGRAMMER ANALYSTS, SOFTWARE ENGINEERS DATABASE ANALYSTS SYSTEMS ANALYSTS

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Please apply with 2 Copies of resume Our company is hiring for following office locations **Pennsylvania:** HRD Vision Systems Group Inc 2400 Gettysburg Rd Camp Hill PA 17011 **New Jersey** HRD Vision Systems Group Inc 100 Davidson Ave Suite # 305 Somerset NJ 08873 **Iowa** HRD Vision Systems Group Inc 111 6th Ave Suite # 11 Coon Rapids IA 50058

PROGRAMMER/ANALYST to analyze design develop test and support animations for various business management software applications using MEL Scripting, Maya Light Wave 3D and Project Messiah under Windows operating system Create visual components of computer applications including modeling, texture mapping articulation (character setup) animation lighting layout and rendering Require Bachelor's degree in Computer Science Business Management Business Admin or a closely related field with 2 years of exp in the job offered or as a Programmer/Character Animator Competitive salary offered Send resume to Chen Cannon Macquanum Inc., 1800 Peachtree St NW Suite 250 Atlanta GA 30309. Attn Job KS

IT SPECIALIST to plan design implement, maintain and administer the company's information infrastructure including hardware setup and maintenance software installation configuration and upgrades network administration and trouble-shooting implement evaluate and maintain networked computer hardware to meet user requirement design develop and maintain the company's website, provide programming design and technical support for users and clients Require Bachelor's degree in Computer Science/Information Systems Competitive salary offered Mail resume to President Microtps Technology 3452 Lake Lynda Dr Suite 215 Orlando FL 32817

Project Leader Corning Incorporated in Corning NY seeks Project Leader to develop and support information technology business, manufacturing and quality systems for science and technology organization Requires Bachelor's degree in Information Management, Computer Science, Engineering or related field and relevant experience including management of IT-related projects, programming languages such as Java C C++ Visual Basic of HTML and application development using relational databases such as Oracle MS SQL Server or MS Access To apply please forward your resume to stoneer@corning.com and reference opening 9543.

Software Engineers, Programmer Analysts, Systems Analysts (NH) IT firm Bach + 1 yr of exp for jr lvl posi's. & Mast + 2yrs or Bachs +5yrs of exp. for sr lvl posi's. Skills req - Java, Cobol, VB, ASP, NET, Oracle Peoplesoft Oracle Financials PL/SQL Server Windows NT, Unix, C,C++ and testing Amcat Dialer working with PRI DSI, protocols pref'd Please apply w/ 2 copies of your resume to HRD, Worldwide Information Technology Services, 155 Fleet Street Portsmouth, New Hampshire - 03801

SOFTWARE ENGINEER (2 positions) to design develop implement test and maintain application software using NET Framework, C# ASP NET XML SQL Server VB ASP COM COM+ JavaScript, MTS and Oracle under Windows and UNIX operating systems Require M S degree in Computer Science an Engineering discipline or a closely related field with two years of experience in the job offered Extensive travel on assignments to various client sites within the U S is required Competitive salary offered Apply by resume to. Sudhakara Ravoori Sai Technical Services Inc. 626 Wendover Drive Ridgeland MS 39157 Attn Job SM

Space Imaging seeks applications for the position of Lead Enterprise GIS Applications Developer in Thornton CO to design and manage enterprise Geographic Information Systems (GIS) software development projects Requirements include a bachelor's in geography or geology 5 yrs exp designing and developing GIS software applications including at least 3 yrs designing geodatabases and utilizing ArcGIS ArcObjects ArcSDE GeoDatabase ArcIMS and UML data modeling methods certificate in Geographic Information Systems. Respond by submitting resume to Christine Skala Space Imaging 12076 Grant St Thornton CO 80241 and referenced JON 4769A

Senior Lead Systems Analyst Corning Incorporated in Corning NY seeks Senior Lead Systems Analyst to develop IT solutions by creating new and modifying existing software applications for science and technology organization Requires Master's degree in Engineering or Computer Science and relevant experience in the stages of innovation in an R & D environment, data application development in Oracle using SQL and/or PL/SQL and customizing Manufacturing Execution Systems To apply please forward your resume to stoneer@corning.com and reference opening 9544

Systems Analyst - Analyze design, develop test & support computer systems for the chemical/nuclear research field using VB 6.0 and Oracle 8.0 Req Bach deg (or foreign equiv) in Info Tech, Engg. or related scientific discipline, w/ 2 yrs. exp in job offered or in the design & development of computer apps/systems Exp gained before or after obtaining Bach will be accepted Paid travel to unanticipated client sites within the U S is required 8a-5p M-F Resume to Corp HR, Systemtec, Inc., 246 Stoneridge Dr., Ste 391 Columbia, SC 29210

Systems Analyst - Abbott Laboratories seeks qualified Systems Analysts Database Administrators Software Engineers and Software Specialists with experience in one or more of the following technologies SAP ABAP BASIS, RDBMS SUN UNIX, Solaris, Oracle, AS/400, PL/SQL, Visual Basic C/C++ Windows, UNIX, SAS, HTML, XML, Java JSP JavaScript, Documentum, LAN Lotus Notes Respond by mail to Abbott Laboratories, Dept 323, Bldg AP6D2, 100 Abbott Park Road, Abbott Park IL 60064-32537 An EOE Refer to ad code IT-KE

Senior Operations Engineer wanted to be responsible for the specification installation & configuration of revenue generating value-added products within live N Amer operator networks provide expert, remote & on-site tech support for all [illegible] across all mobile technologies incl TDMA CDMA, GSM / DCS resolving any issues which may occur resolve escalated tech issues to customer acceptance w/in scheduled timeframes & work proactively to ensure that all live systems are kept up-to-date with minimal disruption to service identify & track hardware & software problems & [illegible] to relevant depts & 3rd party vendors interface as first line of support for third party products, for example Oracle Ingres databases, ISS email gateway servers IVR & SMSC interfaces to 3rd party prepaid platforms maintain extensive knowledge in HP SS7 Opengall Protocol software & hardware lead a team of Engs & maintain ownership of several [illegible] accts., ensuring all support issues are resolved within agreed Service Level agreements, review all call resolution reports prior to delivery to customer & all methods of procedure which are implemented at customer site, interfaces with Product Centers providing advice on design & integration of new products takes lead in learning new products & introducing such products to the region act as mentor & tech advisor to other Operations Engs. provide 24 x 7 tech escalation support to customers & Operations Engs w/in the company support framework Must have Bach deg in Comp Sci Elec Eng or related field & 2 yrs. software tech support exper incl exper troubleshooting HP/Unix operating systems & Oracle 8i databases & incl exper with wireless technologies & prepaid excel switches Salary $65,000 to $70,000/yr Send 2 resumes to Case# 200203624 Div of Career Services Labor Certification Unit, 19 Staniford St 1st Fl Boston, MA 02114

NETWORK ANALYST Monitor and measure the data network performance and assets on all maintenance issues Responsible for overall frame relay [illegible] work performance and maintenance Monitor and administer the LAN/WAN performance reporting tools Provide recommendations on system upgrades [illegible] on performance standards. Utilize the Project Methodology within all phases [illegible] work Prepare required statement of work, project work plans status reports variance reports in accordance with the [illegible] First System Development [illegible] Cycle for approved/assigned projects and update through the project for project monitoring/reporting. Participate in the [illegible] of written procedures to support network monitoring and maintenance Provide technical assistance to all Lead and Senior Network Analysts Require Bachelor's degree or foreign degree equivalent in Computer Science MIS, or a closely related field, plus 2 [illegible] in the job offered or as a Network Administrator/Web Lab Manager In lieu of Bachelor's degree and 2 years of experience a Master's degree in Computer Science will be accepted Experience gained before during and after degree will be accepted Must have CCNA certification Send resume to Recruiter - Human Resources, AgFirst Farm Credit Bank PO Box 1499 Columbia SC 29202 (No Phone Calls Please)

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- Web Architects
- Datawarehousing
- Informix, C or UNIX
- Oracle Developer or Designer 2000
- JAVA, HTML, Active X
- Web Commerce
- SAP/R3, ABAP/4 or FICO or MM & SD
- Oracle Applications & Tools
- Lotus Notes Developer
- UNIX System Administrator
- UNIX, C, C++, Visual C++, CORBA, OOD or OOPS
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Software Engineer sought by network security device manufacturer in Broomfield, CO to work in Broomfield and other unanticipated job sites in the U.S. to, at a senior level design and develop computer software applications which run on a Windows platform and which utilize COM/DCOM and network management protocols such as SNMP. Analyze requirements. Code test and debug the applications. Use C++ MFC and JAVA in the software development process. Requires master's in computer science or electronics engineering or equivalent. Specifically, it requires a master's degree or foreign equivalent or a bachelor's degree or foreign equivalent plus five years of progressive software development experience. 1 yr exp in software development using C++ MFC COM/DCOM and Java. The 1 yr software development experience using C++ MFC, COM/DCOM and Java may be concurrent with the 5 years required above. M-F 8am-5pm. $105,000/yr. Respond by resume to Employment Programs, PO Box 48547, Denver CO 80202 and respond to JON CO5071381

PROGRAMMER/ANALYST to analyze, formulate and implement operation research simulation and optimization models for railroads. Design and develop software programs and web-based application in Java using object oriented methodology on UNIX and Windows platforms. Design and develop database programs in Sybase and DB2 and conduct data analysis using SQL programming. Require B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered. A M.S. degree with a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience will be accepted in lieu of the B.S. degree and 2 yrs of exp. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to Sid Ahuja, Open Systems Inc. 4005 Windward Plaza Drive, Suite 550, Alpharetta, GA 30005. Attn: Job HS

Technical Engineers needed. Seeking qual. candidates possessing MS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include 1 yr working w/ VPN, VOIP, L2TP & PPP protocols. Duties include: Develop & test Wireless & Network Mgnt., Telecomm., Data Comm. & Distributed Computing; Create functional spec. & implement systems. Evaluate interface b/t HW & SW. Send res., ref & sal. req. to Impetus Systems & Careers, 63 Pleasant St. Concord, NH 03301

Software Developer/ Programmer. For co. specializing in developing new Telephony & Internet products, responsible for client's project development of multi-media concurrent systems involving data, speech & vision using Telecommunications & the Internet, analyze systems outlines, documentation & testing, write solution programs, correct programs. Req's: Master of Science Degree in Comp. Sci., Comp. & Info. Sci., Engineering or a related field. 4 yrs exp in job offered or 4 yrs of software development exp. Exp must include software programming & systems design. Exp can be gained while pursuing degree. Proficiency in Java, C/C++, Windows, TCP/IP and Web Server Technology. 40hrs/wk. Send res. to C-11, P.O. Box 1924, Phila. PA 19105

SBI is looking for the following positions for its offices in Houston TX, San Francisco CA, Warren NJ, Salt Lake City UT and Portland OR: Art Director, Web Designer, Programmer Analysts, Technical Architects, Technical Consultants, Business Strategists, Systems Analysts, Software Engineers, Software Developers, SAP Consultant. resumes by email or fax only to HR, SBI 2825 East Cottonwood Parkway Suite 480, Salt Lake City UT 84121 careers@sbiandcompany.com Fax (801) 733-3201

Telecommunication Analyst, Chicago, IL. Advanced wireless system engineering research & analysis for GSM, UMTS, WCDMA, satellite communication, softswitch. Core network capacity & performance. New technology evaluaution, protocol validation in 3G, 2.5G & define architecture. BS Electrical/ Electronics/Comp & min 2 yr related exp. Resume: L. Hormeku, Glotel, 30 S. Wacker Dr., Suite 3900, Chicago, IL 60606

Computer Contract Services, a small growing company is looking for Sr. IT staff. Applicants must have minimum BS with 3-yr exp. using the SAS system. Skills using SAS/BASE, SAS/GRAPH, SAS/ODS are a strong plus. Exp on Unix & NT platforms is req. Contact ken.schmidt@ccsteam.com. EOE

System & network administrator wanted by Pringing Ind. Of MI Service Corp. Duties include system and network administration, install and configure servers, user support. Must have BS or equivalent with CCNA, MCP, MCSE. Please send resume to nick@pnnt.org. EOE

QA ENGINEER II Perform testing tasks on complex projects. Analyze & review Business & System Requirement/Design Specifications. Write test plans/ procedures & create Test Scripts w/ TestDirector 8.0. Create automated test scripts for regression testing w/ QuickTest Professional 6.0/6.5. Proficiency in Test Director 7.6/8.0, QuickTest Professional 6.0/6.5, TD Explorer, Batch Test Manager, Object Repository, MergeTool, LoadRunner 7.0, Tight VNC Server 1.2.8, RealVNC, XML, SQL Server Studio JE 3.0, SQL Editor (Informix), Extra 6.5 (Emulation Tool), Project Insight, ODBC, LDAP Admin Tool, MS Access, HyperSnap-DX-4, Netscape Browser 4.72 and I.E. 5.0/5.5/ 6.0, Putty Tel and Visio. Send resume to: Diane Dull, John H. Harland Co., 2939 Miller Road, Decatur, GA 30035

Programmers, Software Engineers & DBAs. Analyze, design, develop, test apps in (A) Microsoft.Net tech, Oracle/SQL Server/Sybase suites, Java suite, Weblogic, Apache, COBOL, (B) Documentum, ATG Dynamo, Weblogic, Java/Oracle suites and internet security/e-commerce analysis (C) Design, administer and maintain databases in Sybase/SQL Server and Oracle. Please respond to Attn: Vipul Goel, NetAppl. Inc. 2415 San Ramon Valley Blvd. Suite 4140, San Ramon, CA 94583 EOE

XAWARE Inc., a software development company seeks a Sr. Software Engineer with expertise in developing e-data exchange applications for secure multi-user large-scale systems. B.Sc./Comp. Sci. with 5 years exp. Experience with J2EE, Sybase Application Server, Corba and IBM XmlDiff highly desirable. Forward resume to: Attn: Rohit Mital, 2080 Briargate Parkway #150, Colorado Springs, CO 80920 or email to rmital@xaware.com

Software Engineer to design, develops, Implement client server applications utilizing SQL Server, DB2 and Oracle expertise. Object-Oriented Analysis and Design with UML, C++, Java, SQL, PL/1, TERADATA, HTML, XML, XSLT, NET development. Application Programming Development and administration of multiple servers, Developed and Tuned Databases on Unix and NT Platforms. Bachelor's degree in engg. Or equivalent five or more years of experience. Send resume to Triton Information Technologies Inc at 4 ORIOLE COURT, PLAINSBORO, NJ-08536

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Software Engineer Web Technology. Perform Java application development using J2EE and UML and Oracle database administration on a UNIX platform; develop and analyze requirements for digital subscriber line broadband portal infrastructure services and applications; devise sound architecture and technical solutions for complex and large-scale software systems; implement, test and deploy systems using Java portal framework, application servers, web servers and Oracle databases; perform system management duties; manage and support UNIX and Windows server systems, web servers and application servers; perform configuration management and release engineering duties managing source control systems and system releases. Requires a Bachelors degree in Computer Engineering or Computer Science and either two years experience in the job offered or two years experience in Java application development using J2EE and UML and Oracle database administration on a UNIX platform. Salary $78,000.00 per year; 40 hours per week, 8AM to 5PM, Monday to Friday. To apply submit two (2) copies of your resume to:

Case #200203749
Division of Career Services
Labor Certification Unit
19 Staniford Street, 1st Floor
Boston, MA 02114

Computer Support Specialist, Lexington, Massachusetts. Answer and resolve customer technical issues and questions concerning company's configuration management software via telephone and e-mail. Provide customer support, follow through, and commitment to the customer. Document, reproduce and report product defects to Engineering. Contribute technical support knowledge base by authoring Tech Notes. One (1) year Unix Server Administration, Customer Support Role, Networking, C, Pascal and HTML. Requires Bachelor's Degree in Computer Science or related. Two (2) years experience in the job offered or two (2) years experience in the related occupation of Technical Support. $61,079.00 per year. Salary range $61,079 - $67,900 per year based on qualifications. 40 hours per week, 8:00am-5:00pm. Send cover letter and resume in duplicate to Case #200400672, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st Floor, Boston, MA 02114.

Programmer Analyst (Micro/Web) - Multiple Openings. Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analysis, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science/Math/Engineering/Science/Business/Commerce and 1 yr experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B, or 2 of A and 1 of B, or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server, and B includes PowerBuilder, Visual Basic, MS Windows, Visual C++, JAM, APT-SQL, SQL*FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK). High mobility preferred. 40 hrs/week, 8 am - 5 pm. $67,995 - $78,000 per year. Qualified applicants should contact or send resume to Site Manager, Beaver County CareerLink, 2103 Ninth Avenue, Beaver Falls, PA 15010. Refer to Job Order # WEB 402707.

Unix System Administrator. Dsn & impl ntwrk comm & soltns. Propose & implmnt systm enhancements (s/w & h/w updates) that will improve the performance & reliability of UNIX syst. Systm admin of UNIX based hosts running Sun, HP UX, Linux & AIX. Dev & impl kernel scripts. Mng load config of cntrl data comm processor & make recmndts for the purchase or upgrade of data networks. Perform disk array config using Solstice DiskSuite & Veritas Volume Mngr. Reqs: BS or equiv in CS, Eng or rel + 4 yrs exp in job offr or as UNIX/System Admin/Eng or rel. Must incl. Exp or crsewrk w/ system admin of Unix based hosts running Sun, HP-UX & Linux, script dev & impl, disk array config using Solstice DiskSuite & Veritas Volume Manager. Salary: $60K/yr. Work Week: 40 hrs/wk. Job Location: Dubuque, IA. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 590 Iowa Street, Dubuque, Iowa 52004-0757. Please refer to Job Order IA 1101842. Employer paid advertisement.

SOFTWARE ENGINEER to design, develop, implement, test and debug application software using MS SQL Server, ASP.Net, VB.NET, Crystal Reports, MS Visual Studio.Net, MS Visual Source Safe, IIS and ADO.Net and on Windows XP platform. Perform report structure design. Create functional applications including front-end user interface, middle-tier logic and back-end stored procedures. Require M.S. degree in Computer Science/Engineering, or a closely related field with 2 yrs of exp in the job offered or as a Programmer/Analyst or Programmer. Experience gained before or after earning the M.S. degree will be accepted. Competitive salary offered. Send resume to Gregory Jones, Hubbard Systems, 100 Union Hill Drive, Birmingham, AL 35209, Attn: Job HV.

Lanco global Systems Inc is looking for professionals (Software Engineers/Programmer Analyst/Web Developer/QA Testers) with experience in following areas or combination there of:

ERP - People Soft, People Soft HRMS, Oracle Manufacturing (FIN/HR Applications, Also EDI, GEMMS & System ESS, SAP R/3 VBA, ABAP, JDEdwards, BAAN

OS - Unix, sun OS, Solaris, HP UNIX, MS DOS, Win 2000/NT/98/95/4.0/3.1

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Maryfran Johnson,
editor in chief
(508) 820-8179

DEPARTMENT EDITORS

Don Tennant, News editor (508) 620-7714
Craig Stedman, assistant News editor (508) 820-8120
Mitch Betts, Features editor (301) 262-8243
Tommy Peterson, Technology editor (508) 620-7729
Kathleen Melymuka, Management editor (508) 820-8118

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Frank Hayes, senior news columnist (503) 252-0100

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Ellen Fanning, special projects editor (508) 820-8204
Robert L. Mitchell, senior editor (508) 820-8177
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Gary H. Anthes, national correspondent (703) 536-9233
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Sharon Machlis, managing editor/online (508) 820-8231
Ken Mingis, online news editor (508) 820-8545
Marian Prokop, online editor at large (508) 620-7717
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Julie R. Brillon, associate art director (508) 820-8216
David Waugh, associate art director (508) 820-8142

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Bill Rigby, associate Web developer
Matthew Moring, graphics designer

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Mari Keefe, research manager
Gussie Wilson, research associate

COPY DESK

Michele Lee DeFilippo, managing editor/production (508) 820-8126
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GRAPHIC DESIGN

Stephanie Faucher, design director (508) 820-8235
April O'Connor, associate art director
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John Klossner, cartoonist

ADMINISTRATIVE SUPPORT

Linda Gorgone, office manager (508) 820-8176
Cheryl Dudek, administrative assistant (508) 820-8178

CONTRIBUTING COLUMNISTS

Pimm Fox, Michael Gartenberg, Dan Gillmor, Paul Glen, Barbara Gomolski, Thornton A. May, David Moschella, Bart Perkins, Nicholas Petreley, Paul A. Strassmann

CONTRIBUTING WRITERS

Mary Brandel, Russell Kay, Sami Lais, Robert L. Scheier, Steve Ulfelder

GENERAL INFORMATION

TELEPHONE/FAX

Main phone number .... **(508) 879-0700**
All editors unless otherwise noted below
Main fax number ...... **(508) 875-8931**
24-hour news tip line ... **(508) 620-7716**

E-MAIL

Our Web address is
www.computerworld.com.
Staff members' e-mail follows this form:
firstname_lastname@computerworld.com.
For IDG News Service correspondents,
firstname_lastname@idg.com.

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to:
letters@computerworld.com.
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MAIL ADDRESS

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Microsoft Draws Interest With Speech Technology

Uses lower price as a selling point to unseat competition

BY CAROL SLIWA
SAN FRANCISCO

SEEKING TO push voice-recognition technology into the mainstream, Microsoft Corp. last week pointed to signs of encouragement as it launched Speech Server 2004 here.

Early adopters that worked with consultants using beta versions of Microsoft's maiden speech software product have either gone live with applications that can recognize speech responses or will soon move beyond the pilot phase. They said their experiences indicate that they will see significant benefits.

Seattle-based Grange Insurance Group predicted a 15% annual recurring return through a reduction in the number of calls its customer service representatives handle, once its 150,000 policyholders get a chance to use the new system. The company is currently piloting a speech-enabled application that lets 750 policyholders check billing information over the telephone by recognizing their responses to questions. Grange is also letting mortgage companies access additional policy information.

An Alternate Route

CIO Ralph Carlile said Grange had planned to make the information accessible through Web-based applications. But he said that once he learned that his company would be able to reuse the development work to also make the information accessible via telephone by speech-enabling the applications, he jumped at the chance to participate in Microsoft's joint development program for Speech Server.

The rationale for adopting Speech Server was similar for the Southwest Alabama Integrated Criminal Justice System. SAICS used Microsoft's Visual Studio .Net development tools to build applications that would provide Web browser-based access to driver's license, Social Security, license plate and other information. But police officers on bicycles and patrol boats don't always have access to computers, so the prospect of letting them get information through voice inquiries made via cell phones was interesting to Jim Pritchett, executive director of Foley, Ala.-based SAICS.

"We were able to take the development tool, Visual Studio, that we were using and initiate the speech application just by building the linkages," Pritchett said. "We don't have to train anybody on anything different."

Microsoft is promoting the lower price of its speech-recognition technology to set its offering apart from those of competitors such as Nuance Communications Inc., ScanSoft Inc. and IBM. But one prominent user pointed out that price isn't the most important criterion when weighing speech-recognition technology.

"The most important thing for me in any speech application is the power and the strength of the speech recognition," said Fari Ebrahimi, an Arlington, Va.-based senior vice president in IT at Verizon Communications. "What matters is, Are we going to give customers an experience they'll really enjoy and [make them] feel that we care about them? There's no price to put on that."

Cost was a factor for SAICS, which piloted Nuance's product before opting for Microsoft's. Pritchett said that by using its familiar Visual Studio environment, SAICS was able to develop and deploy its application using Speech Server for at least 50% lower cost and in a quarter of the time. But Pritchett added that price comparisons are tricky, since SAICS got favorable treatment through Microsoft's early-adopter program. 45782

Speech Server 2004

KEY ELEMENTS

- **Server-based speech-recognition engine:** Interprets the spoken language
- **Telephony platform software:** Provides an interface between the telephone network and speech-recognition engine
- **Speech Application Language Tags interpreter:** A voice browser for the telephone. The voice browser runs on the speech server and manages interactions among the telephone user, the speech-recognition engine and the Web server running the application.
- **Text-to-speech engine:** Translates text into spoken language. Microsoft licenses the engine from ScanSoft.

PRICING

- **Standard Edition:** $7,999 per processor. Can handle up to 24 concurrent telephone connections per server
- **Enterprise Edition:** $17,999 per processor. Can handle unlimited connections per server

Continued from page 1

EC Decision

products, the better it's going to be for all of us, developers and users," Fouch said. "As a software developer, you can't compete with Microsoft. A little bit more of a level playing field is a good thing."

The European Commission also ordered the company to offer a version of the Windows operating system without its Media Player. But it's the server issue that stands to affect corporate users.

Microsoft's server market share is about 54%, with Linux at 24%, according to market research firm IDC. The market shares of both Linux and Windows are growing at the expense of Unix, NetWare and other server operating systems.

Critics of Microsoft contend that the company preserves certain functionality between its servers and desktops that isn't available for Unix- or Linux-based servers. Since those servers may need to interact directly with a Windows server, such as when providing single sign-on services to multiple environments, having server-to-server interoperability is important.

Lee Patch, vice president of legal affairs at Sun Microsystems Inc., said the commission's decision sets full interoperability "as the standard for competition."

However, Dan Kusnetzky, an analyst at IDC, said it may take 12 to 24 months for rival vendors to incorporate Microsoft's APIs, and they may balk at paying additional license fees and choose to live with existing work-arounds. Microsoft could also add features that require constant API updating, he said.

> **As a software developer, you can't compete with Microsoft. A little bit more of a level playing field is a good thing.**
>
> JAVED FOUCH, PROGRAMMER, HAGERTY INSURANCE

The details of just what Microsoft will be required to do won't be available for weeks under the commission's procedures. Despite the call for "full interoperability," the order isn't requiring disclosure of source code, just interface documentation such as APIs. "So Microsoft has a role in the determination of what's needed," said Mark Ostrau, an antitrust attorney at Fenwick & West LLP in Palo Alto, Calif.

Microsoft plans to fight the decision. Brad Smith, the company's chief legal counsel, said that in forcing the company to disclose server protocols, the European Commission is asking it to give valuable parts of its intellectual property to competitors.

Although Microsoft's appeal may take three to five years, the company could still be forced to comply with last week's ruling by late this year. Microsoft is expected to ask the commission to suspend the remedy until the appeal is complete; a decision on that is expected this fall. 45778

PREVIOUS COVERAGE

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FRANK HAYES ▪ FRANKLY SPEAKING

Unbundled Future

IT'S OLD NEWS BY NOW: The European Commission has slapped Microsoft with a fine of 497 million euros and given the company a few months to strip its Media Player out of Windows and disclose the Windows server interfaces (see story, page 1). Heck, it was already old news even before the official announcement, since word leaked out almost a week early.

The short-term word to corporate IT departments is old news, too: When a vendor is under fire, negotiate for better terms. If you can, leverage Microsoft's troubles to get a sweeter deal.

Is that a brutally tactical view? Sure. Is it in Microsoft's best interest? Maybe not. But you're not working for Microsoft. And Microsoft — or any other vendor — would soak you if the situation was reversed.

You're not willing to negotiate hard with Microsoft at a time like this? Then don't complain about Microsoft's prices or terms. That's true of every other vendor, too — IBM, Dell, SAP, Hewlett-Packard, Oracle, Cisco, Sun, right down to the smallest players. Either you take your opportunities, or you accept what vendors dictate.

OK, that's the story for the short term. But what does the Europeans' decision to slap Microsoft mean a little further out?

It might not mean anything. It might mean a seismic shift in the balance of power in the software business (but it won't). Or it might mean good news for Microsoft *and* all its customers.

What if Microsoft appeals and wins? Nothing changes. No impact.

Or what if Microsoft just has to pay the fine but doesn't have to limit what it bundles into Windows? The fine is about 1% of Microsoft's current pile of cash. No impact.

What if Microsoft loses and, instead of knuckling under, decides to walk away from Europe? Huge impact — Microsoft's revenue would immediately drop by 30%. But that won't happen, if only because Linux would instantly become the de facto standard in Europe. Microsoft would pay any fine and gut Windows of any bundling rather than cede a third of the world to Linux.

Or — here's a wild idea — what if Microsoft loses and then gets serious about competing?

It could happen. True, Microsoft's business strategy for almost 30 years has been based on bundling. First it was Microsoft Basic bundled with early desktop computers. Then customized versions of MS-DOS bundled with early PC-not-quite-compatibles. Then MS-DOS bundled with virtually every PC, then Windows and Office bundled with PCs, then Web browsers and media players bundled with Windows.

Microsoft has searched for new business lines for years. But there's never been any urgency — everyone in Redmond knows that only Windows and Office have to make money. Anything else can be bundled or piggybacked or "integrated" with those products.

But what if Microsoft decided to light a fire under its employees and cut the legs out from under its antitrust foes with a single stroke? What if Microsoft abandoned integration and simply made great add-on products that worked better than those of its competitors?

Suddenly, every product group in Redmond would be under the gun to get it right the first time. And leapfrog the competition. And listen to customers. And market like crazy.

Stripped of that bundling cushion, Microsoft products would have to get a lot better, a lot faster, on their own. Competitors would have to get better faster, too. The whole industry would have to get sharper.

The culture of Microsoft would be revolutionized. Microsoft employees would become aggressive competitors instead of defensive monopolists. They'd have to — or they'd be gone.

And with no more bundling, the biggest antitrust accusation against Microsoft would be gone, too.

Best of all, IT shops would get the benefit of all those better, competition-honed products.

That *would* be news. 45743

FRANK HAYES, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

A Little Too Impressive

New company president sets up an IT task force to cut the large number of hard-copy reports printed every month. For the meeting to announce the team's findings, team member pilot fish loads two mailroom carts with sample reports to demonstrate the waste. And that *does* make an impression on the assembled execs, fish says: "The distribution of hard-copy reports is increased, after some of the VPs realize what they've been missing."

Oops!

This IT manager for a small town needs to buy about 30 PCs. Problem: He's working with a really tight budget, reports a pilot fish there. "They don't need CD-ROM drives – we can save $40 each," manager figures. And preloading the operating system is another $35 per. "Just send the operating system to us, and we'll load them up," manager tells vendor. Sighs fish, "Everything was great until the order arrived – with the operating system on a CD!"

Cutting Edge

After two IT departments merge, there's a new procedure for changing user permissions. No more just asking the server guy, says pilot fish; now we print the form from the company intranet, fill it in by hand and fax it to IT. "I joked that it was somewhat laborious for a cutting-edge high-tech company," says fish. So the policy was amended. "Instead of faxing it," fish says, "I'm now allowed to scan the completed form in and send it to them as an e-mail attachment."

Easy Way Out

Pilot fish observes as a co-worker installs Linux on his Windows XP laptop and then tries to set up a dual-boot option. "He set the time-out to zero, thinking that would give him an unlimited amount of time to switch between operating systems," fish says. "Instead, it gave him exactly zero seconds to choose Linux and always booted to Windows XP by default, rendering his Linux installation inaccessible." So how does he deal with what's effectively a no-Linux laptop? "Actually," chuckles fish, "he sold it."

Smells Like Upgrade Time

When support techs arrive to work on a PC that "needs attention," they find it covered in blobs of dark, foul slime. "Apparently a blocked overhead sewage pipe burst that morning, covering the desk and occupant in its contents," reports a pilot fish on the scene. "They called us out to see if we would take the PC apart and clean it out before switching it back on. We decided this would be an appropriate time to give the user an upgrade to a new PC."

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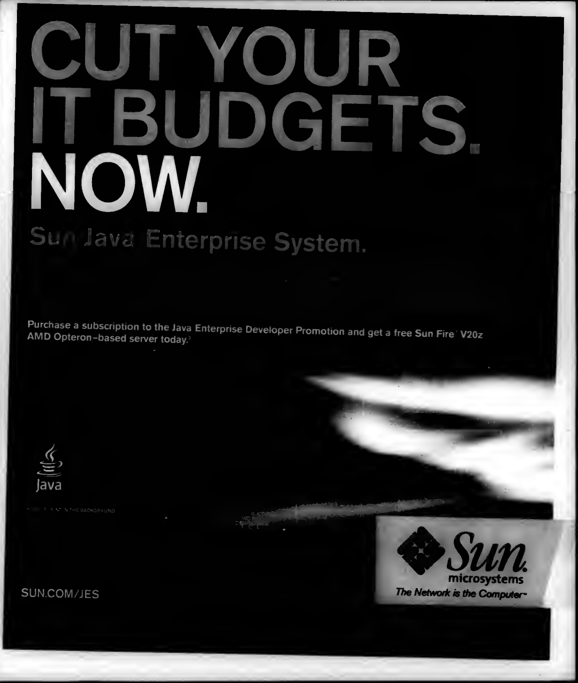
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